SONY

LCD VIDEO MONITOR

PVM-L2300

TRIMASTER HDMI MEMORY STICK™

OPERATION MANUAL English

1st Edition (Revised 1)

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

THIS APPARATUS MUST BE EARTHED.

When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an easily accessible socket-outlet near the unit. If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power plug.

Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Lamp in this product contains mercury. Disposal of these materials may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance (www.eiae.org).

For the customers in Europe

This product with the CE marking complies with both the EMC Directive and the Low Voltage Directive issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European standards:

- EN60950-1:Product Safety
- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment: E4 (controlled EMC environment, ex. TV studio)

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.
The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

This apparatus shall not be used in the residential area.

For the customers in Europe, Australia and New Zealand

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Attention-when the product is installed in Rack:

1.Prevention against overloading of branch circuit
When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2.Providing protective earth
When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3.Internal air ambient temperature of the rack
When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4.Prevention against achieving hazardous condition due to uneven mechanical loading
When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5.Install the equipment while taking the operating temperature of the equipment into consideration
For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6.When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.
Lower, Upper: 4.4 cm ($1^3/_4$ inches) or more

For the customers in Norway

This equipment can be connected to IT power distribution system.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

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Chapter 1 Overview

Precautions

On Safety

- Operate the unit only with a power source as specified in the “Specifications” section.
- A nameplate indicating operating voltage, power consumption, etc., is located on the rear panel.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Do not drop or place heavy objects on the power cord. If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord.
- Unplug the unit from the wall outlet if it is not to be used for several days or more.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

On Installation

- Allow adequate air circulation to prevent internal heat build-up.
  Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Handling the LCD Screen

- The LCD panel fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels may be “stuck”, either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such “stuck” pixels may appear spontaneously. These problems are not a malfunction.
- Do not leave the LCD screen facing the sun as it can damage the LCD screen. Take care when you place the unit by a window.
- Do not push or scratch the LCD monitor’s screen. Do not place a heavy object on the LCD monitor’s screen. This may cause the screen to lose uniformity.
- If the unit is used in a cold place, horizontal lines or a residual image may appear on the screen. This is not a malfunction. When the monitor becomes warm, the screen returns to normal.
- If a fixed picture such as a frame of a divided picture or time code, or a still picture is displayed for a long time, an image may remain on the screen and be superimposed as a ghosting image.
- The screen and the cabinet become warm during operation. This is not a malfunction.

On Cleaning

Before cleaning

Be sure to disconnect the AC power cord from the AC outlet.

On cleaning the monitor screen

The monitor screen surface is especially treated to reduce reflection of light.
As incorrect maintenance may impair the performance of the monitor, take care with respect to the following:

- Wipe the screen gently with a soft cloth such as a cleaning cloth or glass cleaning cloth.
  If you wipe the screen using too much force, the screen surface may lose uniformity or the LCD panel may malfunction.
  Never use tissue as it may scar the surface of the screen.
- Stubborn stains may be removed with a soft cloth such as a cleaning cloth or glass cleaning cloth lightly dampened with water.

- Never use solvent such as alcohol, benzene or thinner, or acid, alkaline or abrasive detergent, or chemical cleaning cloth, as they will damage the screen surface.

On cleaning the cabinet

- Clean the cabinet gently with a soft dry cloth. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution, followed by wiping with a soft dry cloth.
- Use of alcohol, benzene, thinner or insecticide may damage the finish of the cabinet or remove the indications on the cabinet. Do not use these chemicals.
- If you rub on the cabinet with a stained cloth, the cabinet may be scratched.
- If the cabinet is in contact with a rubber or vinyl resin product for a long period of time, the finish of the cabinet may deteriorate or the coating may come off.

On Repacking

Do not throw away the carton and packing materials. They make an ideal container which to transport the unit.

On Rack Mounting

When the monitor is mounted on a rack, the temperature around the monitor may rise due to heat generated from other equipment and reduced air circulation, causing damage to the monitor. To prevent this, keep the space around the monitor (1U or more space above and below the monitor), and install a ventilation fan or take other effective countermeasures so that the temperature around the monitor is within the specified range: operating temperature range of 0 to 35 °C (32 to 95°F).

If you have any questions about this unit, please contact your Sony service representative.

Features

The PVM-L2300 is 23-inch LCD Video Monitor. This is suitable for television stations or video production houses, where precise image reproduction is required.

The PVM-L2300 features flat panel and “TRIMASTER*”, which is a new technology developed for three elements, “accurate color reproduction”, “precision imaging” and “quality picture consistency,” that are in demand for professional use. “TRIMASTER” decreases the viewing difference that occurs due to the individuality of each panel. Also, the PVM-L2300 realizes the high picture quality and high-trust by the color management system with its wide color gamut device, high-resolution/precise gradation display, animation improvement technology and signal processing of high accuracy/calibration/feedback system.

* TRIMASTER is a trademark of Sony Corporation.

23-inch LCD panel developed for the PVM

The 23-inch (22.5 inch) LCD panel was developed for the PVM-L2300 and supports the full HD signal.
It offers a 10-bit driver, high-speed response, high resolution and high color gradation.

12-bit precision display engine for professional use

The panel is equipped with a unique signal process engine developed for the professional use monitor. This engine incorporates 12-bit output accuracy at each process, and provides a high-quality I/P conversion algorithm, scaling processing, panel driving and a highly accurate color management system.

Multi color space

A color management system which uses the unique 3D LUT (Look Up Table) reproduces the color space that complies with the broadcast standard ITU-R BT.709, EBU and SMPTE-C accurately.

High-quality I/P conversion processing

A high-quality picture near the original one, in which jagged lines and conversion errors are decreased by detecting the feature of the picture inside the subdivided block and processing properly, is reproduced.
The signal delay is decreased by judging the animation or still picture from the past video signal.

Interlace display mode

The interlace signal is displayed as the interlace picture by inserting the black line without I/P conversion processing. A picture faithful to the original signal and with the same feel as a CRT is gained.

For setting the display, see "Selecting Display Mode" on page 77.

Black frame insertion display mode

Motion blur caused by the holding-type display of the LCD is decreased by inserting the black frame between the picture frames in double frame rate (100/120Hz) operation of the LCD panel.

For setting the display, see "Selecting Display Mode" on page 77.

Available to a multi signal format

The monitor supports various input signals such as 720 × 576/50i to 1920 × 1080/50P, 60P and variable computer signals up to WUXGA (1920 × 1200). A DVI-D (HDCP correspondence), HDMI* and four option slots are equipped as the interface and the monitor supports HD-SDI, SDI, RGB, YPbPr, Y/C, composite and Dual-link HD-SDI signal input.

* HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

HD frame capture function

The frame of the HD-SDI input signal is captured and saved as a picture file in the "Memory Stick". This is used to confirm the color tone and picture angle of the current scene and recorded scene by using the multi display (Picture&Picture) function.

* As the frame of the input signal is captured, the data and marker set by the monitor is not reflected.

For the operation, see "Capturing the Picture of the HD Signal (HD Frame Capture)" on page 82.

Multi display function

Two kinds of input signals are output on the monitor. Side by Side mode is useful for adjusting the color or comparing two pictures.

For the operation, see "Displaying Two Signals on One Screen (Picture&Picture)" on page 79.

Pixel zoom function

As part of the picture is magnified up to 8 times without scaling processing, this is convenient for confirming a minute part of the signal.

For the operation, see "Magnifying the Picture (Pixel Zoom)" on page 80.

Safe area marker and aspect marker functions

The monitor is equipped with two area markers and center marker as the safe area marker and aspect marker for confirming the picture angle.

For the operation, see "Displaying the Area Marker or Aspect Marker" on page 83.

Scan selection/Native scan display function

You can select from under scan (–3%), normal scan (0%) and over scan (mask of the 5% over scan portion in the normal scan) for the picture display.
The monitor is equipped with a native scan display function which maps the pixel of the signal to the panel in one-to-one mode. You can select the mode from ×1, ×2 or Aspect Correction to display a signal in native mode. An SD signal of non-square pixels (the number of H pixels of the signal system is 720 or 1440) or a 640 × 480 SD signal of DVI video/HDMI video is displayed correctly by scaling processing of doubling for the V direction and correct aspect ratio for the H direction, and the picture is also optimized and displayed by modifying the aperture coefficient value, filter coefficient value, etc. in Aspect Correction mode.

For the operation, see "Selecting the Native Scan/Scan Mode" on page 78.

Black detail mode display function

You can reduce to dull black color by backlight leaking and precisely assess any parts with low color gradation.
You can decrease the black level up to 40% of the normal display (100 cd/m^2 at 100% signal). The parts with high color gradation (higher than 75 IRE) are clipped by the dynamic range of the circuit, but a zebra pattern (selectable) is displayed in the clipped portions.

For the operation, see "Displaying the Picture in Black Detail Mode" on page 81.

Aspect selectable function

A squeezed and recorded signal is displayed with the correct angle. You can select from 4:3 and 16:9 aspect modes.

Remote control function (Ethernet control)

The controller controls up to 32 monitors by the Ethernet (10BASE-T/100BASE-TX) connection. Up to four controllers are connected to one monitor in single mode. You can control individual monitors or monitor groups simply by entering the monitor ID number or group ID number. You can also execute the same operation on all connected monitors, or put all connected monitors into the same setup and adjustment state.

Closed caption display function

EIA/CEA-608 or EIA/CEA-708 standard closed caption signals superimposed on the SDI signals are displayed by installing the optional input adaptor (BKM-244CC).

Variable picture adjustment functions

Auto chroma, phase and matrix adjustment function are equipped. The white balance is automatically adjusted by

using a commercially available probe (Konica Minolta CA-210, DK-Technologies PM5639/06, X-Rite Eye-One Pro).

Other features

- The color temperature is selectable from D65, D93 and User.
- Built-in test pattern for 100% white signal, 20% gray signal, 0% black signal, PLUGE (Picture Line Up Generation Equipment) signal, color-bar signal, 5 step gray scale signal and ramp signal.
- Chroma Up function that increases the chroma setting by 12 dB.
- Blue only function and RGB cut off function to monitor signal noise.
- A parallel remote of the contact point control connector is equipped.

Options

For external control

BKM-16R Monitor Control Unit

The BKM-16R is a controller of the PVM-L2300 and you can control multiple monitors from one controller.

In this manual, the BKM-16R is referred to as the controller.

For installation

BKM-37H Controller Attachment Stand

Used to join a BKM-16R and the PVM-L2300.
When the stand is attached to the PVM-L2300, you can adjust the monitor angle up or down.

BKM-38H Controller Attachment Stand

Used to join a BKM-16R and the PVM-L2300.

SMF-700 Monitor Interface Cable

Used to connect the PVM-L2300 to the BKM-16R.

BKM-23M Monitor Protection Panel

The BKM-23M is a panel to protect the LCD panel of the PVM-L2300.

Input adaptors

The input connector panel is composed by installing the optional input adaptor into the input option slot at the left side of the monitor. Up to four adaptors can be installed to the monitor.
The input signal type for each connector of the adaptor is set with the Input Configuration menu, in accordance with the configuration of the connector panel.

Note

When installing the adaptor, be sure to perform the necessary input signal setup with the Input Configuration menu. If the setup is not performed, the adaptors may not function correctly.

For information about the Input Configuration menu, see page 48.

For details of each input adaptor, refer to the operating instructions of each model.

BKM-220D SDI 4:2:2 Input Adaptor

Includes a decoder for serial digital signals (525/625 component). Input/output connectors for two serial digital channels and output connector for one monitor channel are equipped.

Note

The signal from the MONITOR OUT connector of the BKM-220D does not satisfy the ON-LINE signal specifications.

BKM-227W NTSC/PAL Input Adaptor

Includes a decoder for NTSC/PAL/PAL-M/SECAM signals. Input/output connectors for each one composite signal channel and Y/C signal channel are equipped.

BKM-229X Analog Component Input Adaptor

Includes a decoder for analog component signals and analog RGB signals. Input connector for one channel is equipped.

BKM-243HS HD/D1-SDI Input Adaptor

Includes a decoder for serial digital component signals. Input/output connectors for two serial digital channels and output connector for one monitor channel are equipped.

Note

The signal from the MONITOR OUT connector of the BKM-243HS does not satisfy the ON-LINE signal specifications.

BKM-244CC HD/SD-SDI Closed Caption Adaptor

Includes a decoder for serial digital component signals. EIA/CEA-608 or EIA/CEA-708 standard closed caption signals superimposed on the SDI signals are decoded and displayed. Input/output connectors for two serial digital channels and output connector for one monitor channel are equipped.

Note

The signal from the MONITOR OUT connector of the BKM-244CC does not satisfy the ON-LINE signal specifications.

Caution

When you install the following input adaptors to this equipment, use those with the serial numbers given below.

- BKM-220D with serial number 2100001 or higher
- BKM-229X with serial number 2200001 or higher
- BKM-243HS with serial number 2108355 or higher

BKM-220D: This equipment may not meet the requirements of the electromagnetic interference standard if designated input adaptors are not installed.
BKM-229X: This equipment may not work correctly or you may not be satisfied with the performance if designated input adaptors are not installed.
BKM-243HS: This equipment may not meet the requirements of the electromagnetic interference standard or work correctly, or you may not be satisfied with the performance if designated input adaptors are not installed.

Input/Output Connector and Adaptor

By adding the optional input expansion adaptors, the input/output connector panel can be assembled in a wide variety of configurations. The signals that each of the adaptors' connectors supports are given in the following table. The type of signal to be applied to each input/output connector is set with the Input Configuration menu.

For information about the Input Configuration menu, see page 48.

Input signal		Input adaptor: BKM-220D	BKM-227W	BKM-229X	BKM-243HS/244CC
Serial digital input	Component 525/625	○			○
	Single-link HD-SDI				○
	Dual-link HD-SDI				○(2)
Analog input	Composite NTSC		○		
	Composite PAL		○		
	Composite PAL-M		○		
	Composite SECAM		○		
	Y/C NTSC		○		
	Y/C PAL		○		
	Y/C PAL-M		○		
	Y/C SECAM		○		
	YPbPr 525i/625i			○	
	RGB 525i/625i			○	
	YPbPr/RGB 1080/24PsF			○	
	YPbPr/RGB 1080/24P			○	
	YPbPr/RGB 1080/50i (25PsF)			○	
	YPbPr/RGB 1080/25P			○	
	YPbPr/RGB 576/50P			○	
	YPbPr/RGB 480/60P			○	
	YPbPr/RGB 1080/60i (30PsF)			○	
	YPbPr/RGB 1080/30P			○	
	YPbPr/RGB 720/50P			○	
	YPbPr/RGB 720/60P			○	
Number of digital inputs		2	–	–	2

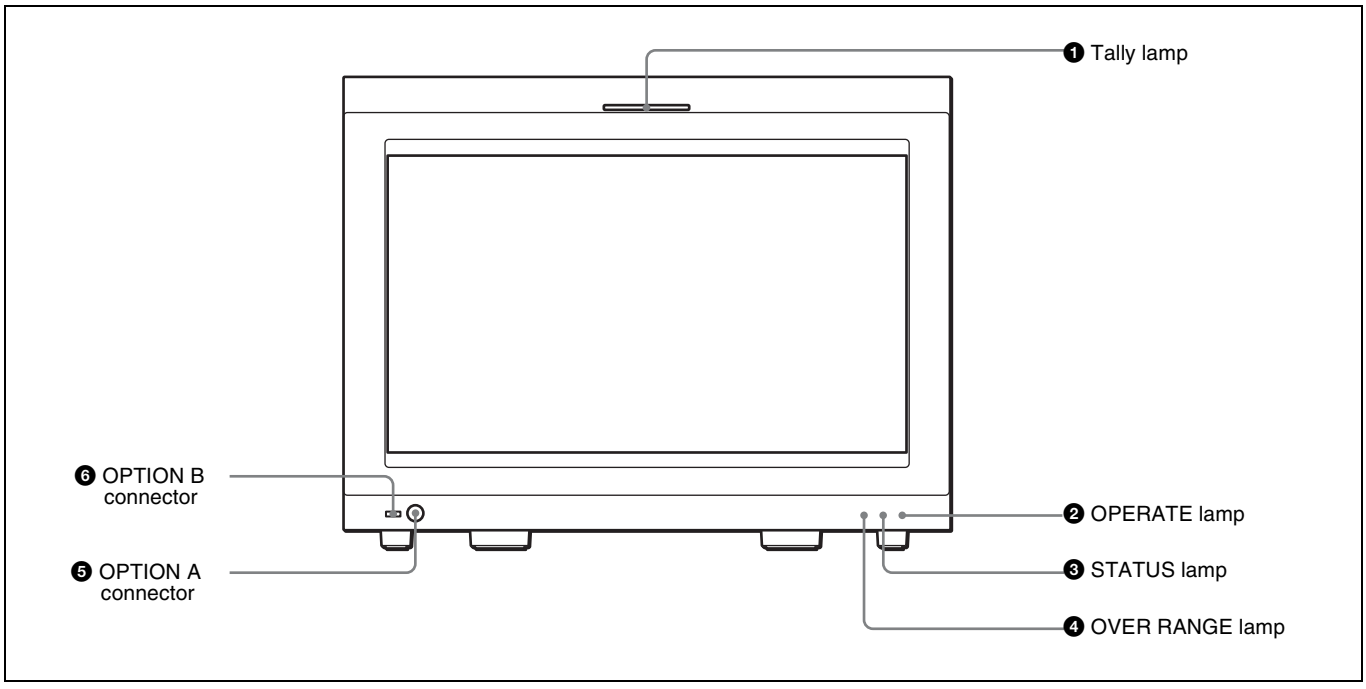
Input adaptor / Input signal	BKM-220D	BKM-227W	BKM-229X	BKM-243HS/244CC
Number of analog inputs	–	1	1	–

○: Signal can be reproduced.
○(2): Two adaptors are used.

For details, see "Available Signal Formats" on page 93.

Location and Function of Parts

Front Panel



❶ Tally lamp

With factory settings, the tally lamp lights when pins No. 8 and No. 9 of the PARALLEL REMOTE connector on the left side panel are shorted. By changing the setting in the Parallel Remote menu, different pins on the PARALLEL REMOTE connector can be used to control the tally lamp.

For information about the Parallel Remote menu, see "Parallel Remote" (page 63) of the System Configuration Menu.

❷ OPERATE lamp

Lights in red when the monitor is in standby mode. The monitor will be in standby mode under the following conditions:

- Standby Mode is set to On in the Power menu of the System Configuration menu and the MAIN POWER switch (on the rear panel) is turned on. (The OPERATE lamp will flash for initialization after the switch is turned on, then will light.)
- The monitor is changed from operation mode to standby mode by external control.

Lights in green when the monitor is put into operation mode from standby mode by pressing the MONITOR I/⏻ switch of the controller.

For information about the Power menu, see "Power" (page 64) of the System Configuration Menu.

Notes

- When the lamp is flashing in red, the monitor cannot be put into operation mode. (Internal data initialization is taking place.) Wait until the lamp is steadily lit.
- The lamp may show the error, warning or operation mode.

  For details, see "Error/warning/operation mode display by the lamp" on page 14.

❸ STATUS lamp

Lights in blue when the error is detected.

For details, see "Error/warning/operation mode display by the lamp" on page 14.

❹ OVER RANGE lamp

Lights in orange when the picture is displayed in black detail mode or when the dynamic range of the following item is exceeded.

- Contrast (contrast)

Flashes when the luminance is decreased to protect the monitor from a rise in temperature.

For details of the black detail mode display, see "Displaying the Picture in Black Detail Mode" on page 81.

Note

The lamp may show the error, warning or operation.

For details, see "Error/warning/operation mode display by the lamp" on page 14.

❺ OPTION A connector
Used to connect a probe for automatic adjustment.

❻ OPTION B connector
Used for future expansion.
The cover is attached at the factory.

Error/warning/operation mode display by the lamp

The OVER RANGE lamp, STATUS lamp or OPERATE lamp on the front panel may show an error, warning or operation mode while the monitor is being operated.

Error display

If the error is shown, please contact your Sony representative.

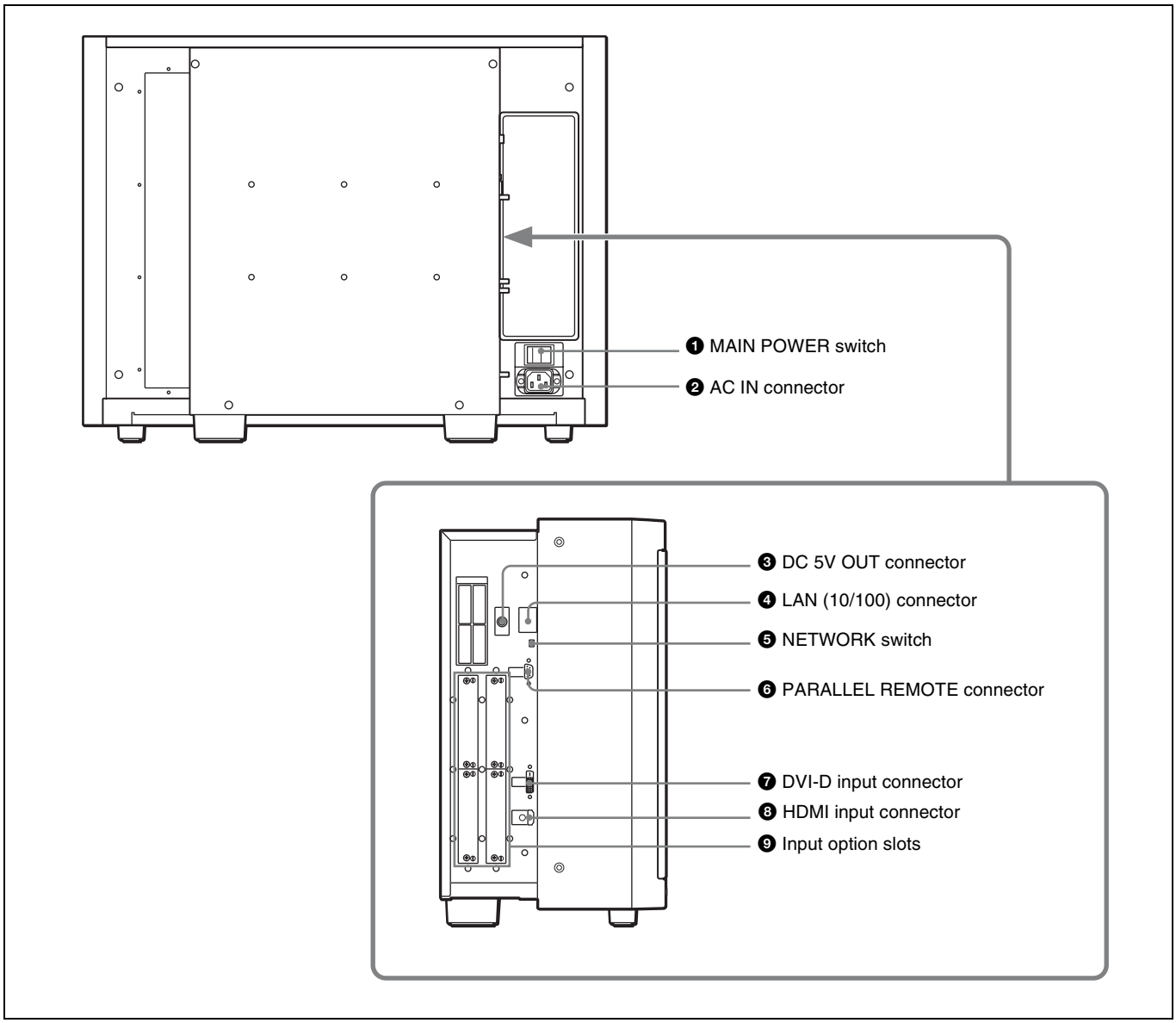
OVER RANGE lamp	STATUS lamp	OPERATE lamp	Symptoms
Lights in orange	Goes out	Flashes in red	The power in the backlight part is overcurrent.
Flashes in orange	Goes out	Flashes in red	The power in the backlight part is overvoltage.
Goes out	Lights in blue	Flashes in red	The temperature of the backlight part is unusual.
Goes out	Flashes in blue	Flashes in green	The temperature sensor is unusual.
Lights in orange	Lights in blue	Flashes in red	The temperature of the LCD panel is unusual.
Lights in orange	Goes out	Flashes in green	The RGB sensor of the backlight part is unusual.
Flashes in orange	Goes out	Flashes in green	Fan error.

Warning/operation mode display

OVER RANGE lamp	STATUS lamp	OPERATE lamp	Symptoms
Flashes in orange	–	–	The luminance is reduced to protect the circuit from an increase of temperature in the backlight part. ⇨ Please contact your Sony representative.
Lights in orange	–	–	• The dynamic range is exceeded when contrast is adjusted. ⇨ Reduce the contrast setting. However, when the contrast of the backlight does not increase in the low temperature, the lamp may light. • When the picture is displayed in black detail mode

–: Status except for error display.

Rear Panel/Left Side Panel


❶ MAIN POWER switch
❷ AC IN connector
❸ DC 5V OUT connector
❹ LAN (10/100) connector
❺ NETWORK switch
❻ PARALLEL REMOTE connector
❼ DVI-D input connector
❽ HDMI input connector
❾ Input option slots

❶ MAIN POWER switch
When turned on (**I**), the monitor enters operation mode. By setting in Power menu of the System Configuration menu, the monitor can also be set to enter standby mode when the MAIN POWER switch is turned on.

For information about the Power menu, see "Power" (page 64) of the System Configuration Menu.

❷ AC IN connector (3-pin)
Connects the monitor to an AC power source, via the supplied AC power cord.

❸ DC 5V OUT connector (female)
Supplies the DC power to the controller.
Connect to the DC 5V/12V IN connector of the controller with the SMF-700 or the cable supplied with the BKM-37H/BKM-38H.

CAUTION
DC 5V OUT connector (female) is non LPS (Limited Power Source) circuit.

❹ LAN (10/100) connector (10BASE-T/100BASE-TX)
Connect to the LAN (10/100) connector of the controller by using the SMF-700 or the cable supplied with the BKM-37H/BKM-38H. Or connect to the network or the LAN (10/100) connector of the controller by using a 10BASE-T/100BASE-TX LAN cable (shielded-type, optional).

CAUTION

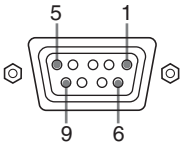
- For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.
- When you connect the LAN cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.
- To connect the monitor to the LAN (10/100) connector of the controller in 1 to 1 connection (NETWORK switch is set to PEER TO PEER), use a straight (shielded-type) cable.
- The connection speed may be affected by the network system.

❺ NETWORK switch

LAN: To connect to the network.
PEER TO PEER: To connect to the LAN (10/100) connector of the controller in 1 to 1 connection.

❻ PARALLEL REMOTE connector (D-sub 9-pin, female)

Forms a parallel switch and controls the monitor externally. The pin assignment and factory setting function assigned to each pin are given below.



Pin number	Function
1	Sets input signal channel 1 (numeric keypad function).
2	Sets input signal channel 2 (numeric keypad function).
3	Selects sync signal (SYNC button function).
4	Selects whether monochrome image is displayed or the monitor switches the display mode automatically between color image and monochrome image depending on the input signal (MONO button function).
5	Marker (set in the Marker Setting menu) On/Off (MARKER button function).
6, 7	Not connected
8	Tally lamp On/Off
9	Ground

All pin function assignments can be changed with the Parallel Remote menu.

For information about the Parallel Remote menu, see "Parallel Remote" (page 63) of the System Configuration Menu.

To switch each function between On and Off or between enable and disable, change pin connections in the following way.
On or enabled: Short each pin and pin 9 together.
Off or disabled: Leave each pin open.

❼ DVI-D (digital DVI) input connector

Inputs DVI Rev.1.0 applicable Single-link digital RGB signal.
To monitor the DVI signal of SXGA or higher resolution, use the cable within 3 m (118 1/8 inches) in length.

❽ HDMI input connector

Inputs the HDMI signal.
HDMI (High-Definition Multimedia Interface) is an interface that supports both video and audio on a single digital connection, allowing you to enjoy high quality digital picture. The HDMI specification supports HDCP (High-bandwidth Digital Content Protection), a copy protection technology that incorporates coding technology for digital video signals.

Notes

- The HDMI audio signal is not available for this monitor.
- Use HDMI compliant cable (optional), Category 2 (High Speed HDMI cable), with HDMI logo.

❾ Input option slots

Used to install the optional input adaptors.

For installing the input adaptor, see page 18.

For the input signals, see "Input/Output Connector and Adaptor" on page 11.

Chapter 2 Preparations

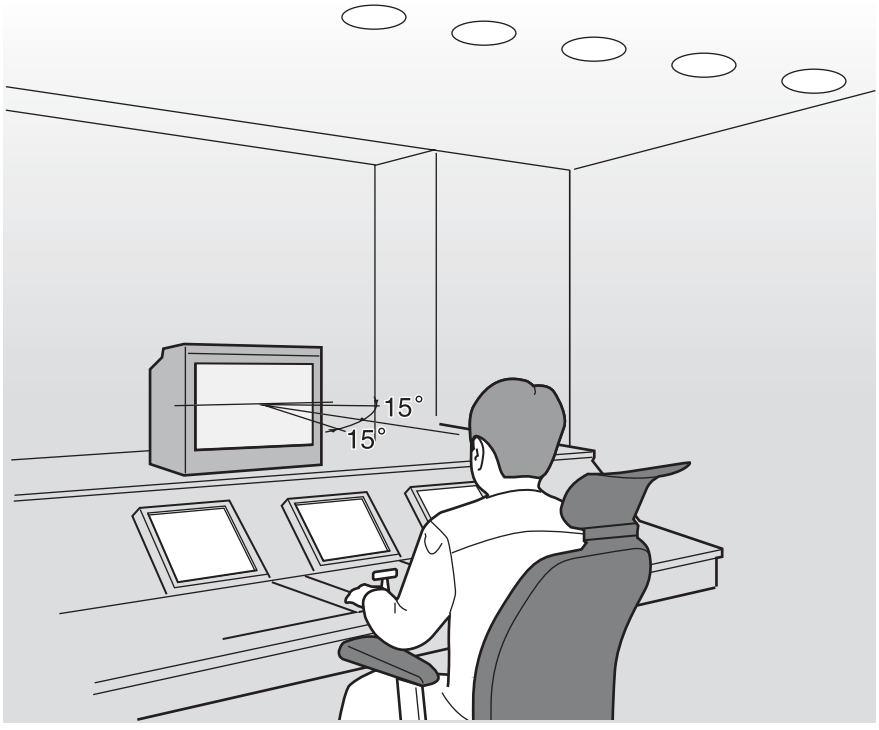
Environments of the Installation Location

Illumination environments

The apparent color reproduction on the monitor is greatly affected by ambient light or glare.
The LCD device controls the brightness by moving LCD molecules with the backlight always lit. For this reason, in a dark place, an LCD monitor screen shows very dim light leaks from the black image. We recommend that you adjust the ambient light and use in an environment that does not degrade the reproduction of black.

Viewing angle

The ideal viewing angle is within 5 degrees (up/down/left/right) off the center of the monitor screen when the operator views the entire monitor screen. Keep the viewing angle within 15 degrees off the center of the monitor screen.



Installing an Input Adaptor

Each input adaptor can be installed in any input option slot on the side panel.

Caution

When you install the following input adaptors to this equipment, use those with the serial numbers given below.

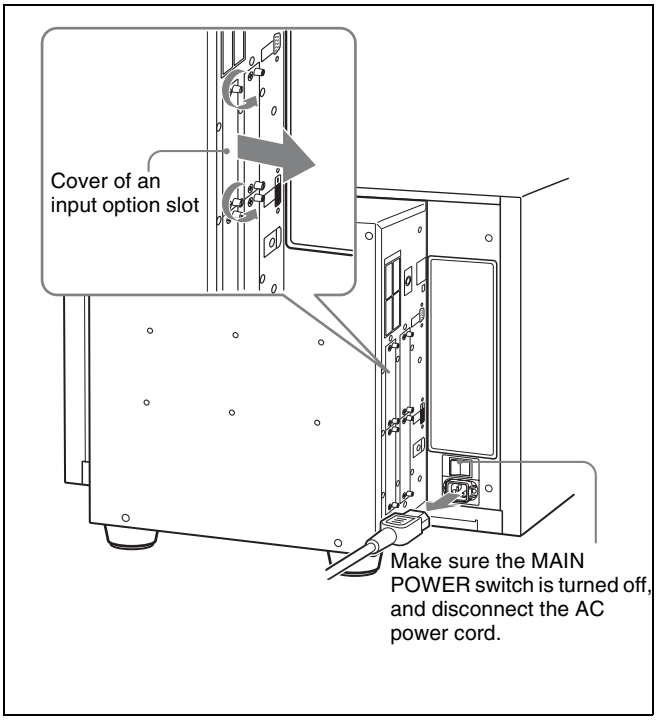
- BKM-220D with serial number 2100001 or higher
- BKM-229X with serial number 2200001 or higher
- BKM-243HS with serial number 2108355 or higher

BKM-220D: This equipment may not meet the requirements of the electromagnetic interference standard if designated input adaptors are not installed.
BKM-229X: This equipment may not work correctly or you may not be satisfied with their performance if designated input adaptors are not installed.
BKM-243HS: This equipment may not meet the requirements of the electromagnetic interference standard or work correctly, or you may not be satisfied with the performance if designated input adaptors are not installed.

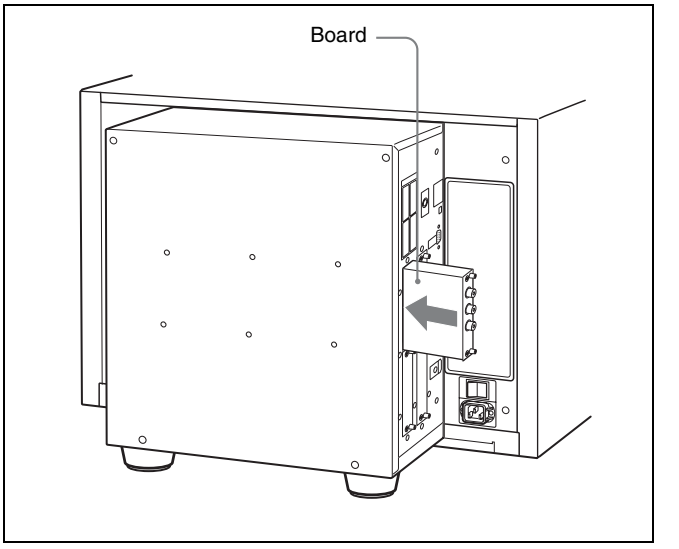
Note

Turn off the MAIN POWER switch of the monitor and disconnect the AC power cord before installing or removing adaptors.

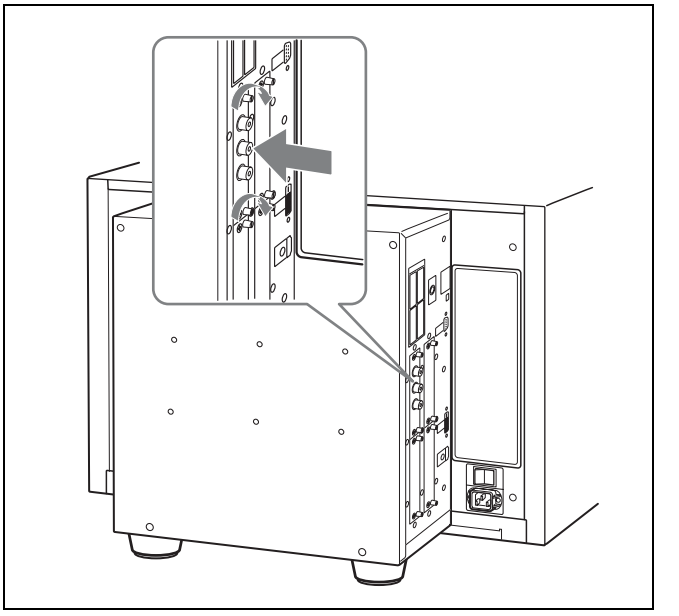
1 Loosen two screws and remove the cover of an input option slot on the side panel of the monitor.



2 Insert the adaptor facing the board as shown below.



3 Push the adaptor in until it is firmly fit into the connector inside the monitor, then tighten the two screws to secure the adaptor.

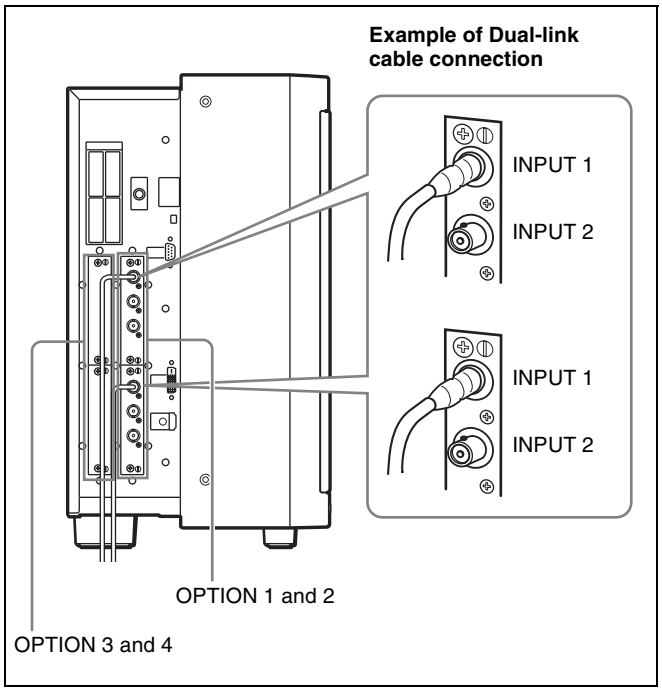


For Dual-link operation

Two BKM-243HS or BKM-244CC input adaptors are required. Install the input adaptors in OPTION 1 and 2 option slots, or OPTION 3 and 4 option slots.

To connect the cable

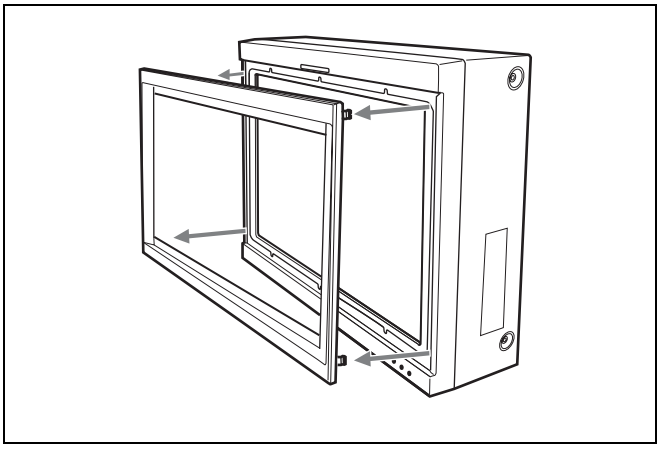
Input the Link A signal to OPTION 1 or 3, and the Link B signal to OPTION 2 or 4.
Connect the cable to the same input number (both INPUT 1 or both INPUT 2) of the input adaptors installed in OPTION 1 and 2 option slots, or OPTION 3 and 4 option slots.



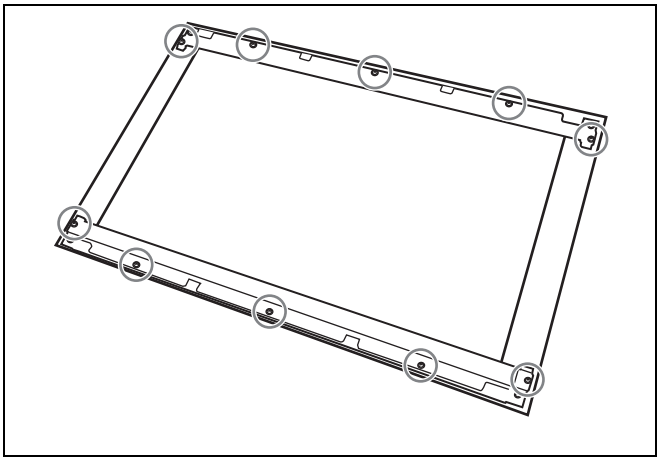
Changing the Aspect Ratio of the Screen

The 16:9 frame is installed at the factory. The aspect ratio can be switched from 16:9 to 16:10 by removing the 16:9 frame.
To display the native scan picture (×2 mode) of the 576/50i signal, or whole picture of the UXGA or WUXGA signal, remove the 16:9 frame.

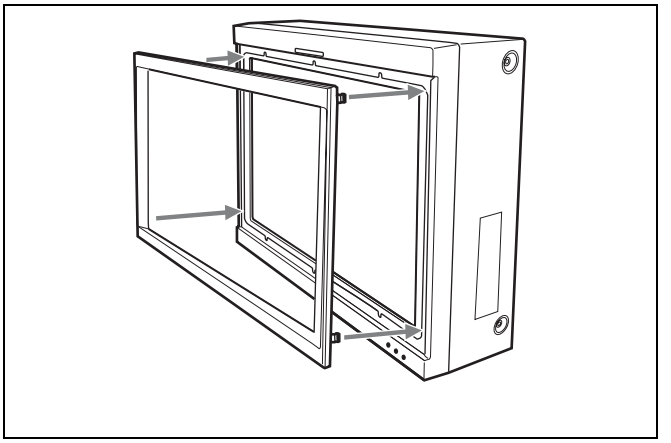
1 Remove the front frame.



2 Remove 10 screws and then remove the 16:9 frame.



3 Replace the front frame by pressing it until it clicks.



Attaching the 16:9 frame

1 Remove the front frame.

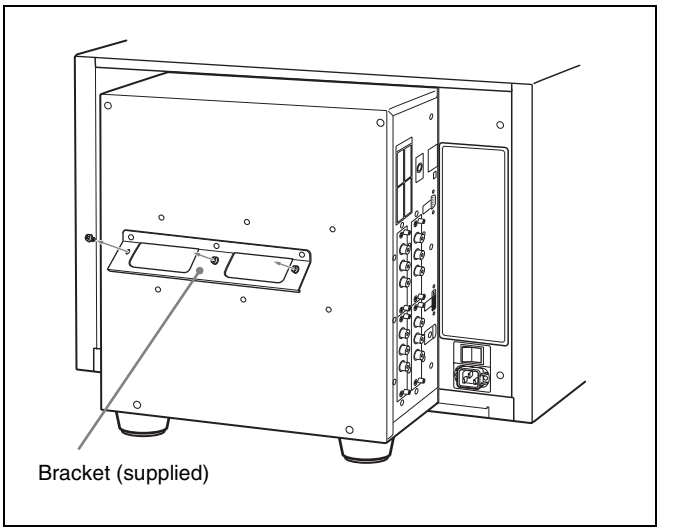
2 Replace the 16:9 frame and secure it with 10 screws.

3 Replace the front frame by pressing it until it clicks.

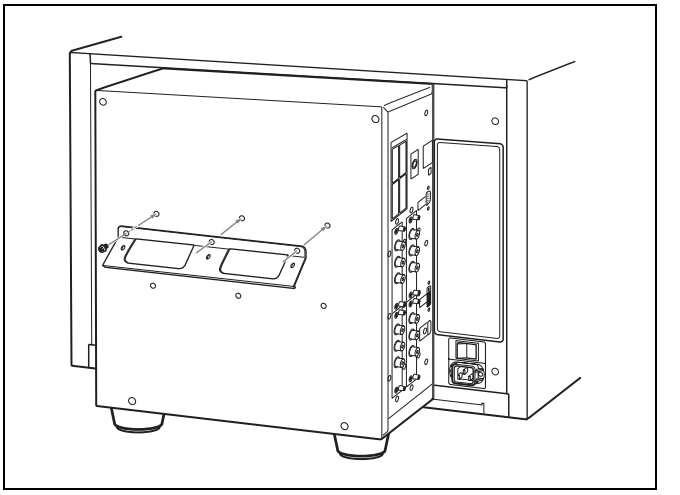
Attaching the Bracket

You can prevent falling of the monitor by using the supplied bracket.

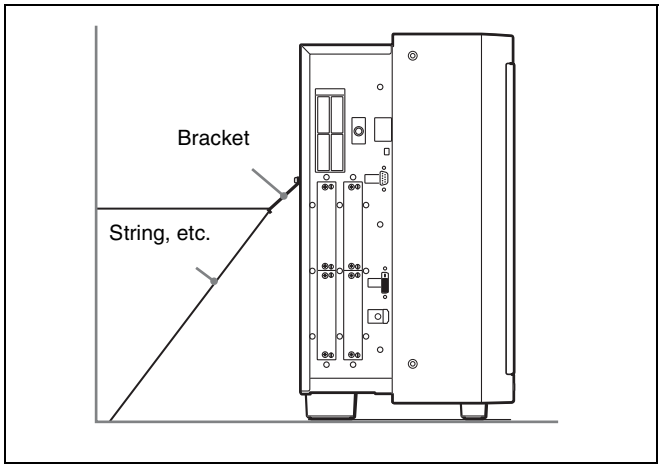
1 Remove three screws from the bracket.



2 Attach the bracket on the rear panel of the monitor with the three removed screws.



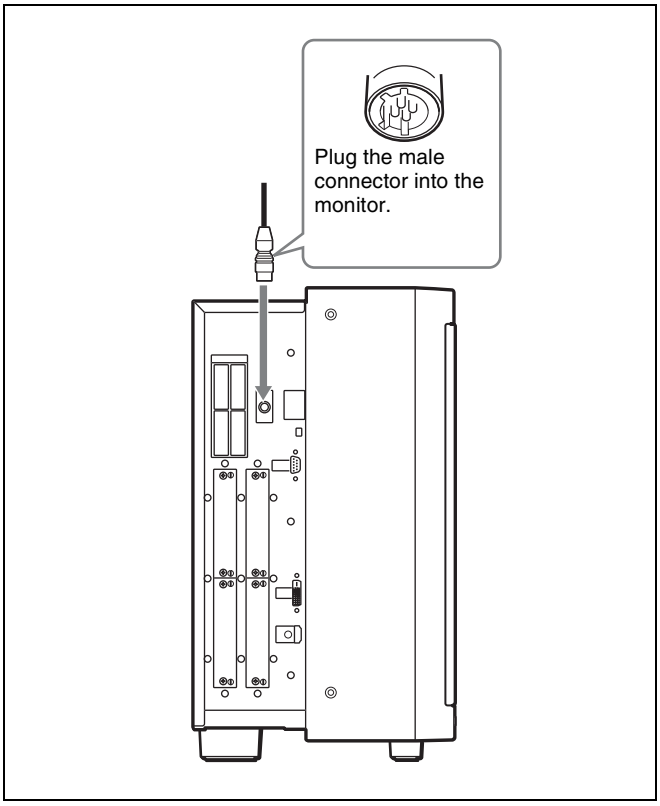
3 Attach a piece of string, etc. to the bracket and secure it to the floor or wall.



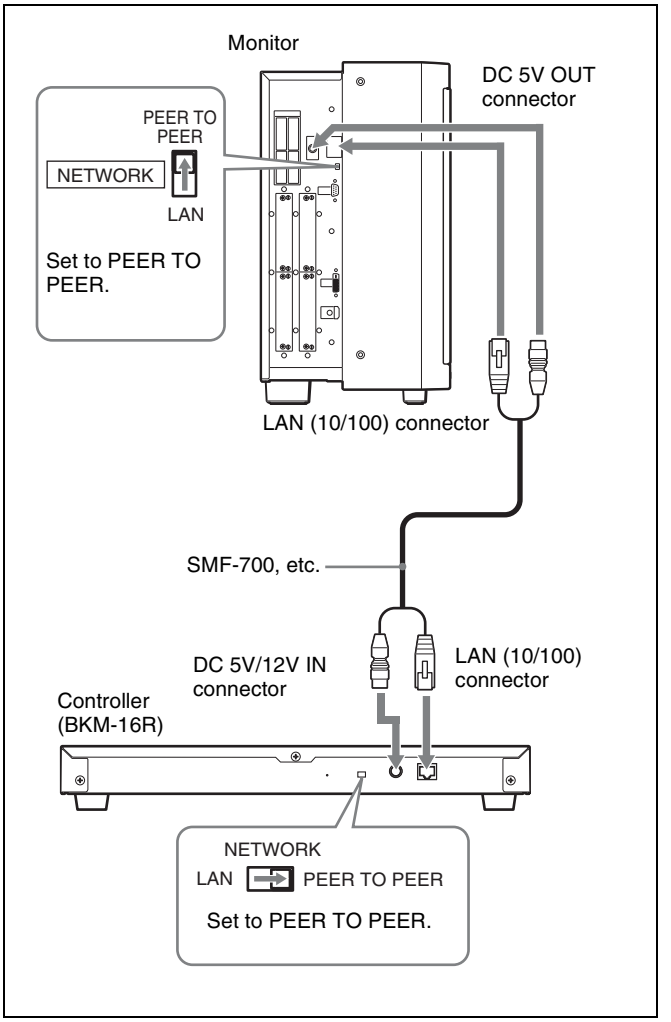
Connections

Note on connecting the cable to the DC 5V OUT connector

Be sure to plug the male connector of the cable into the DC 5V OUT connector of the monitor.
Insert the connector so as to fit the shape of the DC 5V OUT connector.



Connecting the Controller (BKM-16R)



1 Turn off the MAIN POWER switch of the monitor before connecting the units.

2 Set the NETWORK switches of the monitor and the controller to PEER TO PEER.

3 Connect the LAN (10/100) connector of the monitor and the LAN (10/100) connector of the controller by using the SMF-700 or the cable supplied with the BKM-37H/BKM-38H, or a 10BASE-T/100BASE-TX straight LAN cable (shielded-type, optional).

Note

When an optional LAN cable is connected, use a shielded-type cable to prevent a malfunction due to noises.

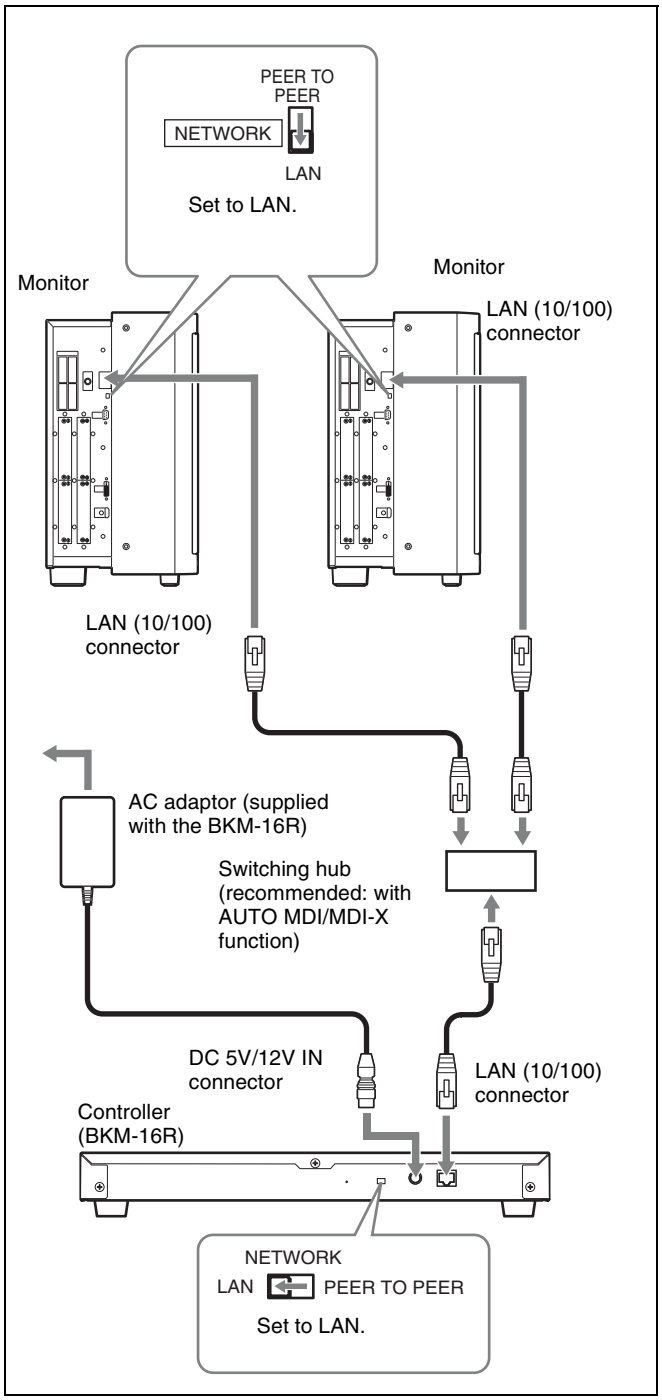
4 Connect the DC 5V OUT connector of the monitor and the DC 5V/12V IN connector of the controller by using the SMF-700 or the cable supplied with the BKM-37H/BKM-38H.
Or connect the output cable of the AC adaptor supplied with the controller to the DC 5V/12V IN connector of the controller.

Connecting the Multiple Units with the LAN

The controller controls up to 32 monitors. Up to four controllers are connected to one monitor in single mode.

Note

The controller cannot control monitors in another subnetwork.



1 Turn off the MAIN POWER switch of the monitor before connecting the units.

2 Connect to the network by using a 10BASE-T/100BASE-TX cable (shielded-type, optional).

Notes

- When an optional LAN cable is connected, use a shielded-type cable to prevent a malfunction due to noises.
- We recommend to use an optional switching hub with auto selection function (AUTO MDI/MDI-X) of a straight/cross cable.
  When the switching hub without auto selection function is used, connect the monitor and switching hub with the straight cable, and the controller and switching hub with the cross cable.

3 Connect the output cable on the AC adaptor supplied with controller to the DC 5V/12V IN connector of the controller.

Note

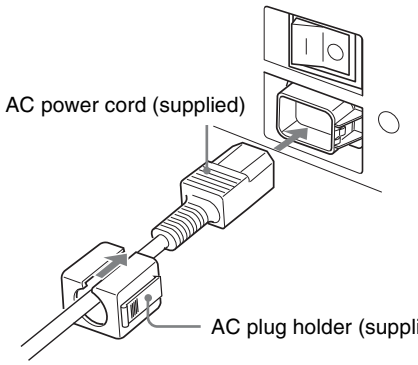
When the multiple units are connected, set for the LAN before setting the NETWORK switch to LAN (page 26).

4 Set the NETWORK switches of each monitor and the controller to LAN.

Turning on the Power

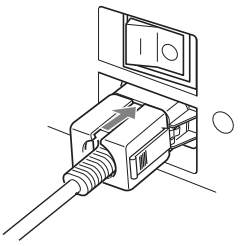
Connecting the AC Power Cord

1 Plug the AC power cord into the AC IN connector on the rear panel. Then, attach the AC plug holder (supplied) to the AC power cord.



Attach the AC plug holder to the AC power cord, and connect the cord to the AC IN connector so that the cord does not come loose.

2 Slide the AC plug holder over the cord until it locks.



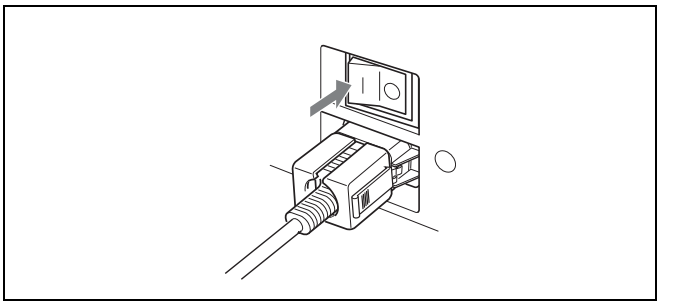
To disconnect the AC power cord

Pull out the AC plug holder while pressing the lock levers.

Turning on the Monitor

Press the MAIN POWER switch on the rear panel to turn on the power.
When you turn on the monitor for the first time after purchasing it, the Select Area screen is displayed. Select the area where you intend to use this monitor.

For selecting the area, see page 25.



The warm-up time is more than 30 minutes, approximately.

When the monitor is in standby mode

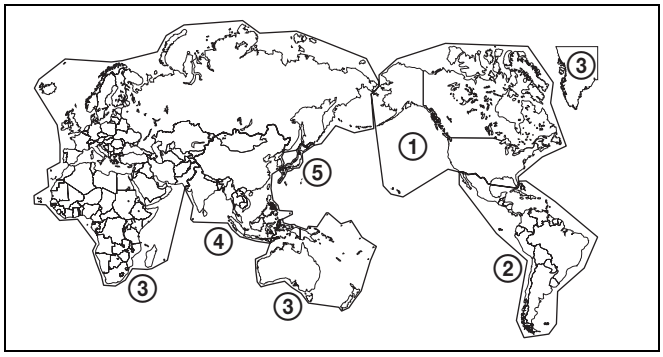
As the OPERATE lamp lights in red in standby mode, press the MONITOR I/⏻ switch of the controller.
The OPERATE lamp lights in green and the monitor enters operation mode.

Settings

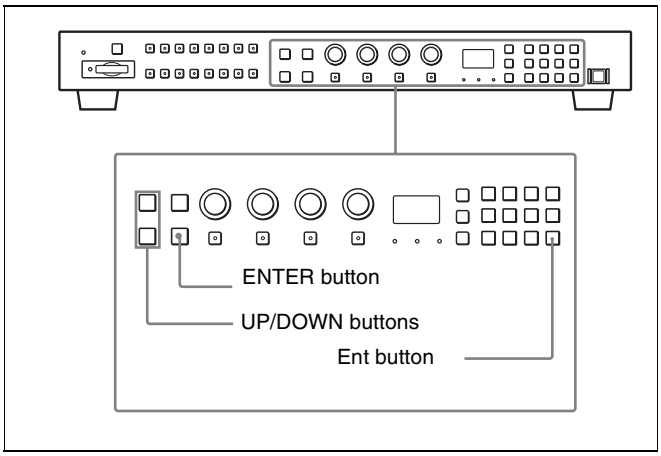
Selecting the Area

When you turn on the monitor for the first time after purchasing it, select the area where you intend to use this monitor from among the options.
When the area is selected, the menu item settings suitable for the selected area are applied.

Default value for each area

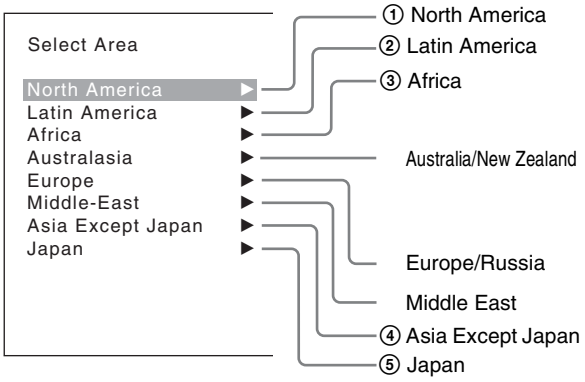


		Color Temp	Setup Level	Component Level	Color Gamut Emulation
①North America		D65	7.5%	Betacam	BVM SMPTE-C
②Latin America	Argentina	D65	0%	SMPTE/ EBU-N10	BVM EBU
PAL&PAL-N Area	Paraguay	D65	0%	SMPTE/ EBU-N10	BVM EBU
	Uruguay	D65	0%	SMPTE/ EBU-N10	BVM EBU
NTSC&PAL-M Area	Other Area	D65	7.5%	Betacam	BVM SMPTE-C
③Africa Australasia Europe Middle-East		D65	0%	SMPTE/ EBU-N10	BVM EBU
④Asia Except Japan	NTSC Area	D65	7.5%	Betacam	BVM SMPTE-C
	PAL Area	D65	0%	SMPTE/ EBU-N10	BVM EBU
⑤Japan		D93	0%	SMPTE/ EBU-N10	BVM EBU



1 Turn on the monitor with the MAIN POWER switch.

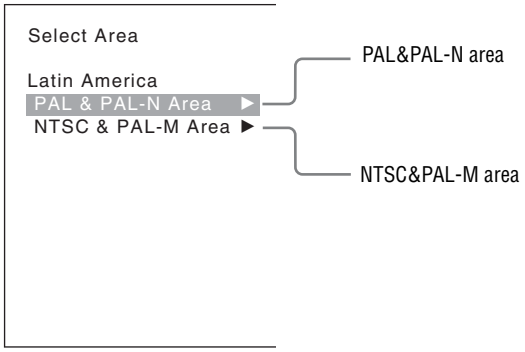
The Select Area screen appears.



2 Press the UP or DOWN button of the controller to select the area where you intend to use the monitor and press the ENTER (Ent) button.

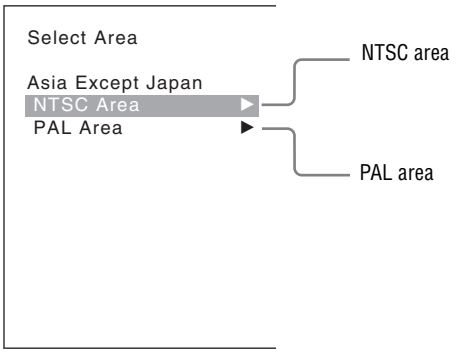
If you select either Latin America or Asia Except Japan, one of the following screens appears.

If ② Latin America is selected:

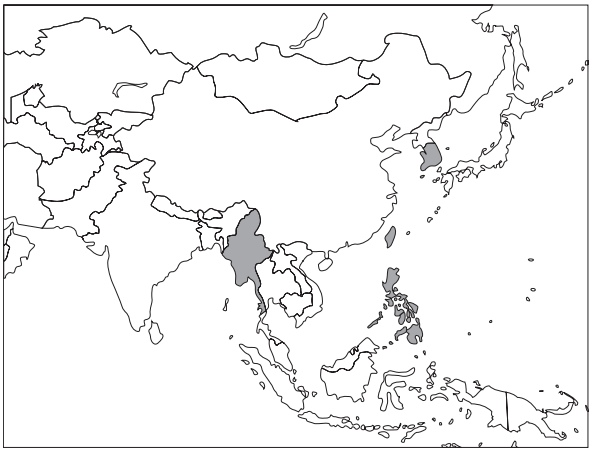


Select PAL & PAL-N or NTSC & PAL-M and press the ENTER (Ent) button.

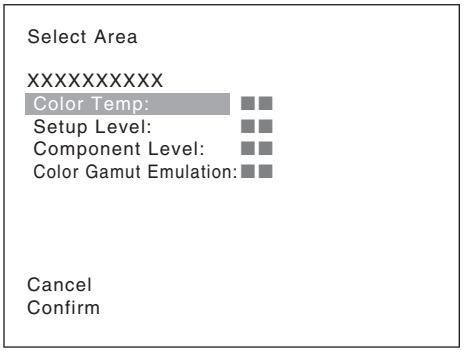
If ④ Asia Except Japan is selected:



Customers who will use this monitor in the shaded areas shown in the map below should select NTSC Area.
Other customers should select PAL Area.
Then press the ENTER (Ent) button.



3 Confirm the settings.



Cancel: Select to cancel the setting and return to the Select Area screen.
Confirm: Select to save the setting and end selecting the area.
See “Default value for each area” on page 25 on the setting value.

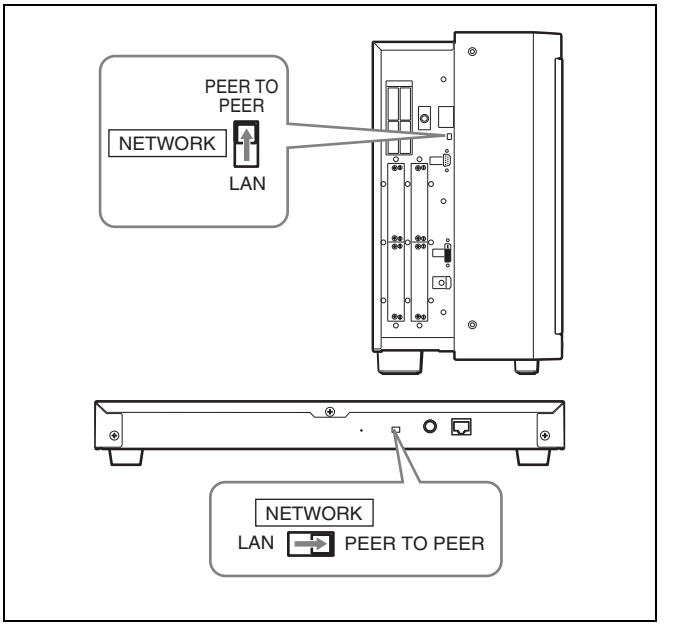
After saving and reflecting the setting, you can change the setting with the menu.
- Color Temp (color temperature) (page 50)
- Setup Level (NTSC Setup Level: page 51, Betacam Setup Level: page 51)
- Component Level (page 51)
- Color Gamut Emulation (page 53)

Setting for the LAN to Connect the Multiple Units

You can control the multiple monitors using the controller connected via each LAN (10/100) connector. You can also control a specific monitor or monitor group.

Set an IP address to the monitors and the controller and a monitor ID number and group ID number to each monitor.

1 Set the NETWORK switches of each monitor and the controller to PEER TO PEER.



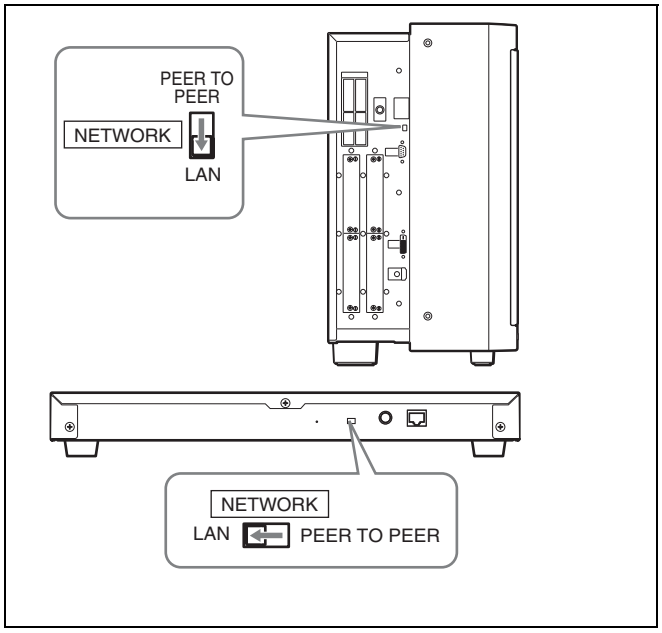
2 Set the different IP address to each monitor and the controller.

Monitor: Set the IP address in the Network Setting menu of the System Configuration menu (page 62).
Controller: Set the IP address in the Network Setting menu of the Controller menu (page 72).

3 Set Monitor ID and Group ID in the Network menu of the System Configuration menu (page 62).

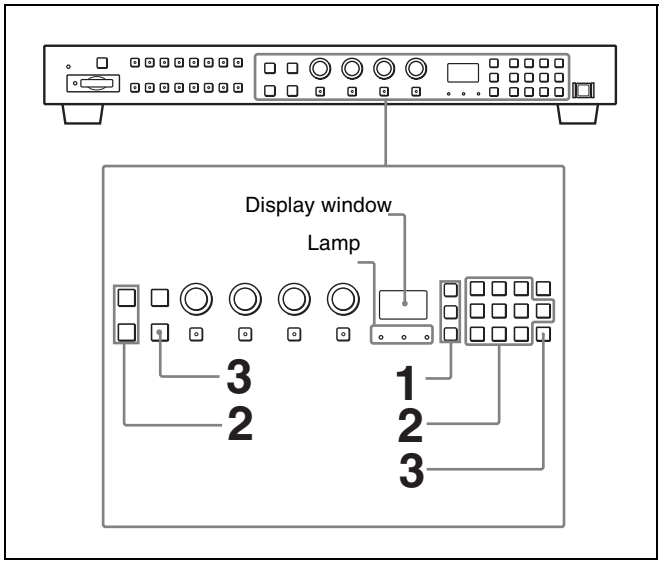
Set the different monitor ID number to each monitor and if necessary, group ID number.
You can use the numbers 1 to 99 as a monitor ID number or group ID number.

4 Set the NETWORK switches of the monitor and the controller to LAN.



Selecting the Monitor (Designation of the Monitor or Group ID Number)

When the multiple monitors are connected by the network connections, you can remotely connect the monitors from the controller by designating the set monitor ID number or group ID number.



1 Press the corresponding button to select the connection mode.

SINGLE button: Selects single connection mode.
The designated monitor is connected remotely.
The monitor ID number is displayed on all connected monitors when the button is held pressed.

GROUP button: Selects group connection mode.
The monitor of the designated group is connected remotely.
The group ID number is displayed on all connected monitors when the button is held pressed.
ALL button: Selects all connection mode.
All monitors are connected remotely.

The lamp corresponding the pressed button flashes and lights after recognizing the monitor.

2 Select the monitor ID number for the single connection mode or group ID number for the group connection mode by pressing the UP/DOWN or numeric button.

Up to 99 is entered as the monitor ID or group ID number.

3 Press the ENTER or Ent button to confirm the setting.

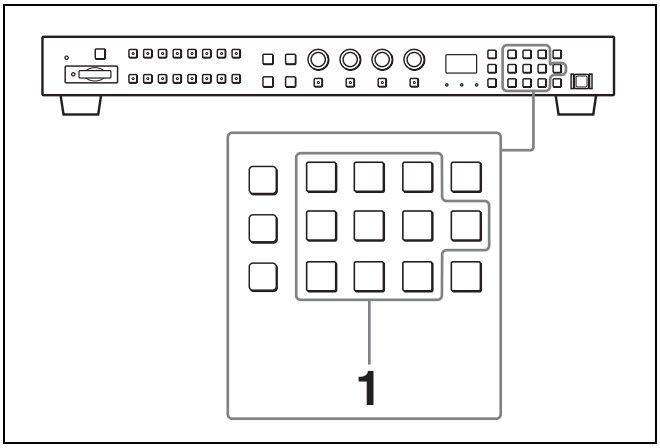
The monitor ID number, group ID number or ALL is displayed in the display window.

Notes

- When the monitor with no assigned monitor ID number or group ID number is selected, the setting is not changed and the previous connection status is maintained.
- When there are monitors with the same ID number, the monitor with the lower IP address is selected.
- Even if a different monitor ID number is set to the monitors, when the same IP address is set to another monitor, the monitor cannot be connected to the network.

Assigning the Input Signal to the Channel

When you assign the input signal to the channel, you can select the channel and change the input signal by pressing the numeric button. The input signal is assigned to one of channels 1 to 30.



1 Select the channel (CH1 to CH30) to be assigned by pressing the numeric button of the controller.

To assign to a channel number from 1 to 9, press the appropriate one-digit channel number on the numeric keypad.
To assign to a channel number from 10 to 30, press the 0 button, then press the appropriate two-digit channel number.

2 Set the input signal for the selected channel in Input Configuration menu (page 48).

The required setting is different due to the input signal or picture quality to be displayed.

For details of the setting, see the Input Configuration menu (page 48).

Setting the Display Mode of the Picture

Set the display mode condition of the input signal to display on the screen. The setting items are following.
- Setting Matrix/Gamma (transmission matrix and transmission gamma)
- Selecting the color gamut (color space and gamma)

1 Set Matrix/Gamma in the Matrix/Gamma menu (page 50) of the Input Configuration menu.

2 Select the color gamut (color space and gamma) in the Emulation menu (page 53) of the Display Setting menu.

Adjusting

Before adjusting

The monitor must be warmed up sufficiently.
To perform stable color reproduction, turn on the power of the monitor, display the white signal and leave it in this state for more than 30 minutes.

About monitor adjustment

The monitor is used as a measuring instrument and is required to faithfully reproduce the input signal. To measure the signal accurately, the monitor must be calibrated correctly using a reference signal.
To calibrate, adjust the following items in sequence.

1 Chroma/phase adjustment
You can save the adjustment value in Preset1 to Preset5. The data of Preset1 to Preset5 is set to the channel in the Picture Preset menu (page 50) of the Input Configuration menu.
Adjust the picture automatically with the auto chroma/phase/matrix function for every signal format and signal system to display the composite signal or Y/C signal from the BKM-227W, or analog component signal or analog RGB signal from the BKM-229X. If the picture is not adjusted, the picture may not be displayed correctly.

2 Color Temperature (white balance) adjustment
You can adjust the data set to the channel in the Color Temp menu (page 50) of the Input Configuration menu.
You can adjust D93, D65 or User1 to User5.

3 Brightness/Contrast adjustment
You can save the adjustment value in Preset1 to Preset5. The data of Preset1 to Preset5 is set to the channel in the Picture Preset menu (page 50) of the Input Configuration menu.

Chroma/Phase Adjustment

Automatic adjustment (with auto chroma/phase/matrix function) is required for each signal format, signal system and matrix to display the composite or Y/C signal from the BKM-227W, or the analog component or analog RGB signal from the BKM-229X.
As you can automatically adjust the chroma, phase, matrix and also 100% (white) and 0% (black) levels of the monitor to the same as those of the reference signal by performing the automatic adjustment, the automatic adjustment is also effective for the RGB signal.
Perform the manual adjustment of chroma and phase to adjust them further after automatic adjustment or the digital signal from the BKM-220D, BKM-243HS or BKM-244CC.

Automatic adjustment (recommended)

1 Input the reference color-bar signal to the monitor.

2 Select Auto in the Picture Adj menu of the Adjustment menu and perform the automatic adjustment of the chroma, phase and matrix in Auto Adjust (page 42).

Manual adjustment

The following is the example of the method to perform the manual adjustment of the chroma and phase.

1 Input the multi format color-bar signal or SMPTE color-bar signal to the monitor.

2 Set the BLUE ONLY button to on.

Red and green signals are cut, and only the blue signal is displayed as a monochrome picture.

The following is the example of the adjustment when the multi format color-bar signal is used.

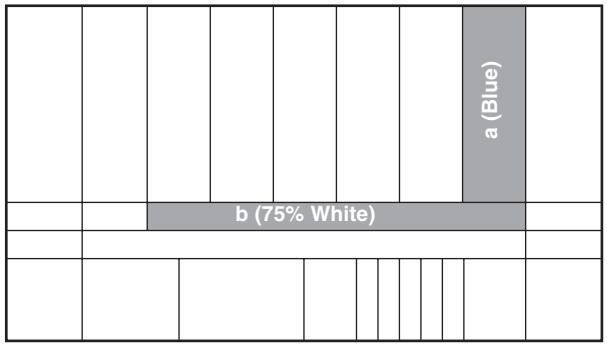
3 Select the Manual Adjust menu (page 43) in the Picture Adj menu of the Adjustment menu and adjust the levels with the CHROMA or PHASE knob of the controller while tracking so that the brightness of bars "a" (Blue part) and "b" (75% White part) (in the following illustration) are the same.

For the composite and Y/C signals

Adjust the levels with the CHROMA and PHASE knob.

For the component signal

Adjust the levels with the CHROMA knob.



4 Press the ENTER or Ent button.

The adjusted data is confirmed.

5 Set the BLUE ONLY button to off.

Color Temperature (White Balance) Adjustment

You can adjust manually or automatically with a specified color temperature probe.

Note

When the DVI Computer signal or computer signal input of HDMI is displayed, the color temperature cannot be adjusted automatically.
Perform the manual adjustment of the color temperature.

Automatic adjustment

Use one of the following probes.
- Konica Minolta CA-210
- DK-Technologies PM5639/06
- X-Rite Eye-One Pro

1 Connect the color temperature probe.

For the cable to connect the color temperature probe, see page 119.

2 Select Auto Adjust (page 45) in the Color Temp Adj menu of the Adjustment menu and adjust the color temperature.

Manual adjustment

1 Select Manual Adjust (page 44) in Manual of the Color Temp Adj menu of the Adjustment menu.

2 Adjust the color as desired with the PHASE, CHROMA or BRIGHT knob.

3 Press the ENTER or Ent button.

The adjusted data is confirmed.

Brightness/Contrast Adjustment

As an image on a color video monitor is seen differently according to the ambient light (environmental brightness), adjust the brightness (black level) according to the ambient light and the black level of the image to be reproduced and adjust the contrast (white level) according to the ambient light.
Adjust the brightness/contrast with an external reference signal of a multi format color-bar signal or SMPTE color-bar signal.

1 Input the multi format color-bar signal or SMPTE color-bar signal to the monitor.

The following are explained as the example when the multi format color-bar signal is used for adjustment.

2 Select the Manual Adjust menu (page 43) in the Picture Adj menu of the Adjustment menu.

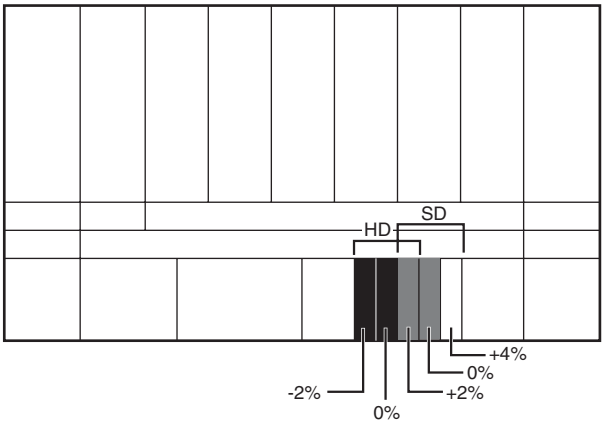
3 Adjust the –2%, 0% and +2% ranges or the 0%, +2% and +4% ranges of the PLUGE signal section of the color-bar with the BRIGHT knob.

HD signal

Adjust so that the –2% and 0% ranges are seen as equal and the +2% and 0% ranges are more distinctive.

SD signal

Adjust so that the 0% and +2% ranges are seen as equal and the +2% and +4% ranges are more distinctive.



4 Adjust so that the luminance of the 100% white signal of the color-bar is set to the desired value with the CONTRAST knob.

We recommend adjusting the luminance to 100 [cd/m^2] when Preset1 to Preset5 is selected in the Picture Preset menu of the Input Configuration menu.

5 As the brightness and contrast adjustments affect each other, repeat the adjustments of step **3** and **4**.

Note

When the contrast of this unit is adjusted, the luminance of the backlight is adjusted for a picture of luminance 40 [cd/m^2] (20 [cd/m^2] in black frame insertion or interlace display mode) or higher, and the contrast is adjusted by the signal level for a picture of luminance lower than 40 [cd/m^2] (20 [cd/m^2] in black frame insertion or interlace display mode).

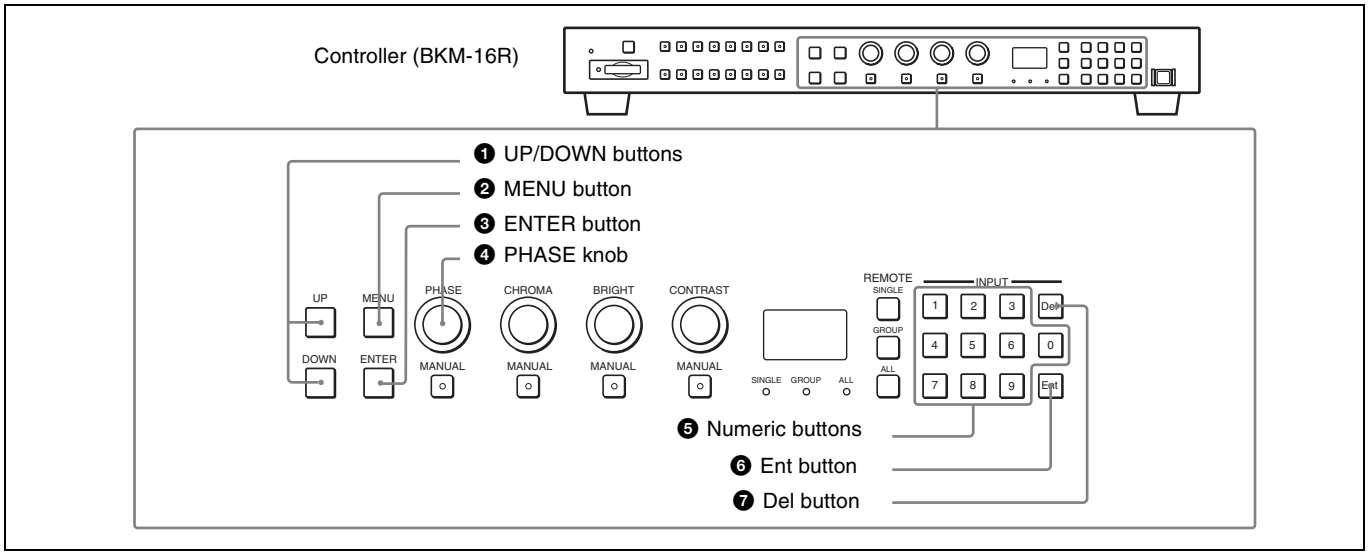
Menu

Chapter 3

Basic Menu Operations

Menu Operation Buttons

The menu is operated using the menu operation buttons on the controller (BKM-16R, optional).



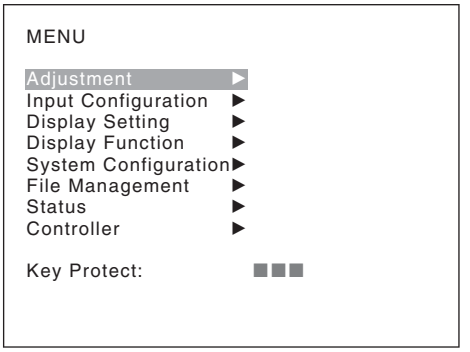
The functions of the menu operation buttons are described below.

Button	Function
❶ UP button	Moves the cursor upward. In setting mode, increases the setting or adjustment value.
❶ DOWN button	Moves the cursor downward. In setting mode, decreases the setting or adjustment value.
❷ MENU button	Displays the menu. Goes back to the menu of the upper level. (On the main menu, goes back to the normal picture.)
❸ ENTER button	Changes the item. In setting mode, confirms the adjustment or setting value.

Button	Function
❹ PHASE knob	By turning this knob clockwise, the cursor moves upward. In setting mode, increases the setting or adjustment value (has the same function as UP button). By turning this knob counterclockwise, the cursor moves downward. In setting mode, decreases the setting or adjustment value (has the same function as DOWN button).
❺ Numeric buttons	Enters the numerical values.
❻ Ent button	Changes the item. In setting mode, confirms the adjustment or setting value.
❼ Del button	Deletes the values and characters entered.

Displaying the Menu

Press the MENU button.
The main menu is displayed on the screen.



When you select one item on the main menu, the level 1 menu of the selected item appears.

For the items on the menu, see "Menu Structure" on page 35.

Notes

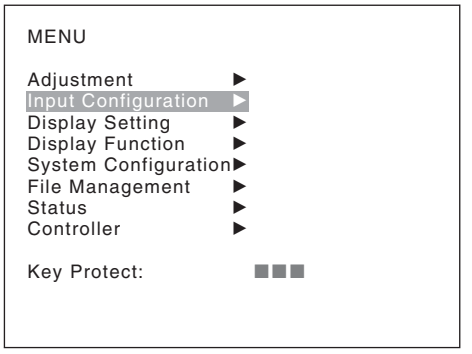
- Menu items displayed in gray cannot be selected.
- This menu is not displayed when Pixel Zoom is set to on.

Setting or Adjusting in the Menu Operation

1 Press the MENU button.

The main menu is displayed.

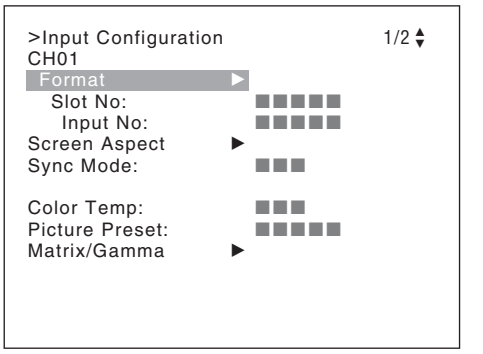
2 Using the UP or DOWN button or PHASE knob, select the desired item. (Example: select the Input Configuration menu by pressing the DOWN button.)



3 Press the ENTER or Ent button.

The level 1 of the selected menu is displayed.

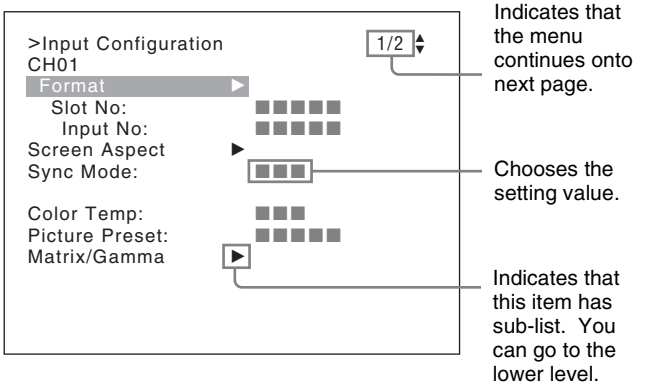
The current settings are displayed in place of the ■ marks on the illustrations of the menu screen.

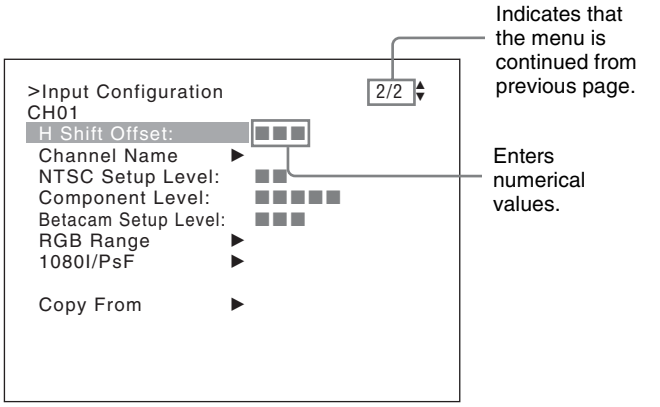


4 Repeat steps **2** and **3** until the desired menu is displayed.

For more information about setting and adjustments, see below.

Display example





Choosing the setting value

The method for selecting the value is different due to the menu item.

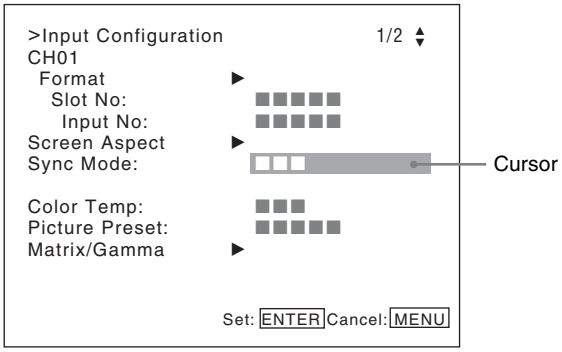
- Selecting in setting mode
- Selecting from the setting list

When selecting in setting mode

1 Using the UP or DOWN button or PHASE knob, select the desired item and press the ENTER or Ent button.

The cursor moves to the setting value and the monitor enters in setting mode.

Display example



2 Using the UP or DOWN button or PHASE knob, select the setting value.

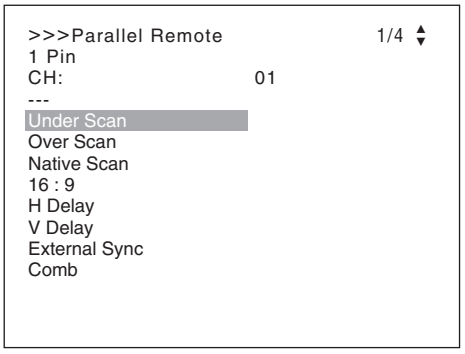
3 Press the ENTER or Ent button.

The setting is confirmed and the cursor returns to the item.

When selecting from the setting list

1 Using the UP or DOWN button or PHASE knob, select the desired item in the setting list.

Display example



2 Press the ENTER or Ent button.

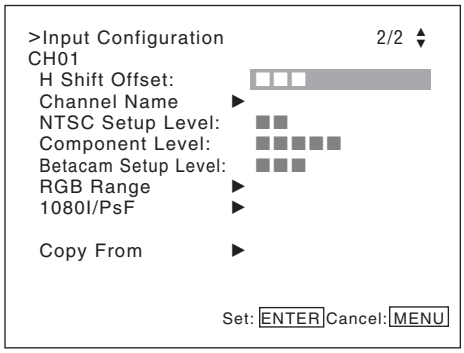
The setting is confirmed and the display returns to the menu of the upper level.

Entering numerical values

1 Using the UP or DOWN button or PHASE knob, select the desired item and press the ENTER or Ent button.

The cursor moves to the setting value and the monitor enters in setting mode.

Display example



2 Select the value in one of the following three ways:

- Enter the value directly using the numeric buttons and press the ENTER or Ent button. (only the item whose the value of setting range is over 0)
- Select the value using the UP or DOWN button.
- Select the value using the PHASE knob.

3 Press the ENTER or Ent button.

The setting is confirmed and the cursor returns to the item.

Entering characters

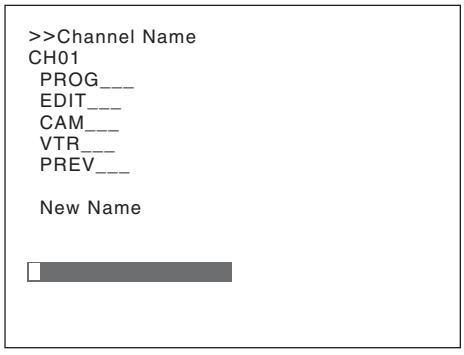
1 Using the UP or DOWN button or PHASE knob, select New Name or the existing name.

The "---" means that one or more characters can be entered in sequence after the existing name.

2 Press the ENTER or Ent button.

3 Using the UP or DOWN button or PHASE knob, select the characters that you wish to enter.

Display example



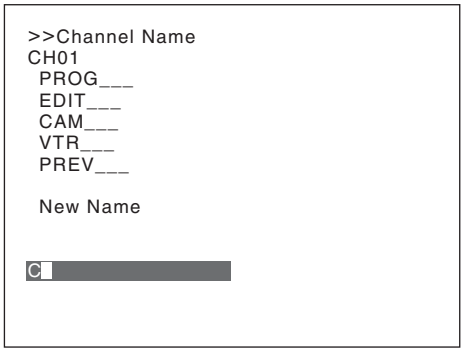
When you press the UP button or turn the PHASE knob clockwise, the characters and symbols appear in the sequence shown below.
Capital letters (A → B → ..... → Y → Z) → Lower-case letters (a → b → ..... → y → z) → Numbers (0 → 1 → ..... → 8 → 9) → Marks → Capital letters...

When you press the DOWN button or turn the PHASE knob counterclockwise, the characters and symbols appear in the reverse sequence described above.
The usable symbols are limited depending on the menu.
"(space)" is not used as a first character of a sentence.

4 Press the ENTER or Ent button.

The selected character is entered.

Display example



5 Repeat steps **3** and **4** until all the characters are entered, then press the ENTER or Ent button.

The selected characters are confirmed and the display returns to the menu of the upper level.

To correct the entered character

Press the Del button. The character on the left side of the cursor is deleted.

Entering the Channel Number

When selecting a one-digit number, press the button of the channel number.
When selecting a two-digit number, first press the 0 button, then press a two-digit channel number.

Channel numbers 91 to 97 assignment

The signal systems to which the internal signal is displayed are assigned to channel numbers 91 to 97. The internal signal of the last signal system is displayed.

091: PLUGE signal
092: 20% gray signal
093: 100% white signal
094: Five-step gray scale signal
095: Ramp signal
096: color-bar signal
097: 0% black signal

To cancel the internal signal, select one from the channel numbers 1 to 30.

Note

You cannot select channel numbers 91 to 97 in the following cases:

- When the DVI Computer format signal or computer signal of HDMI is input
- When Side by Side is set to On
- When Pixel Zoom is set to on

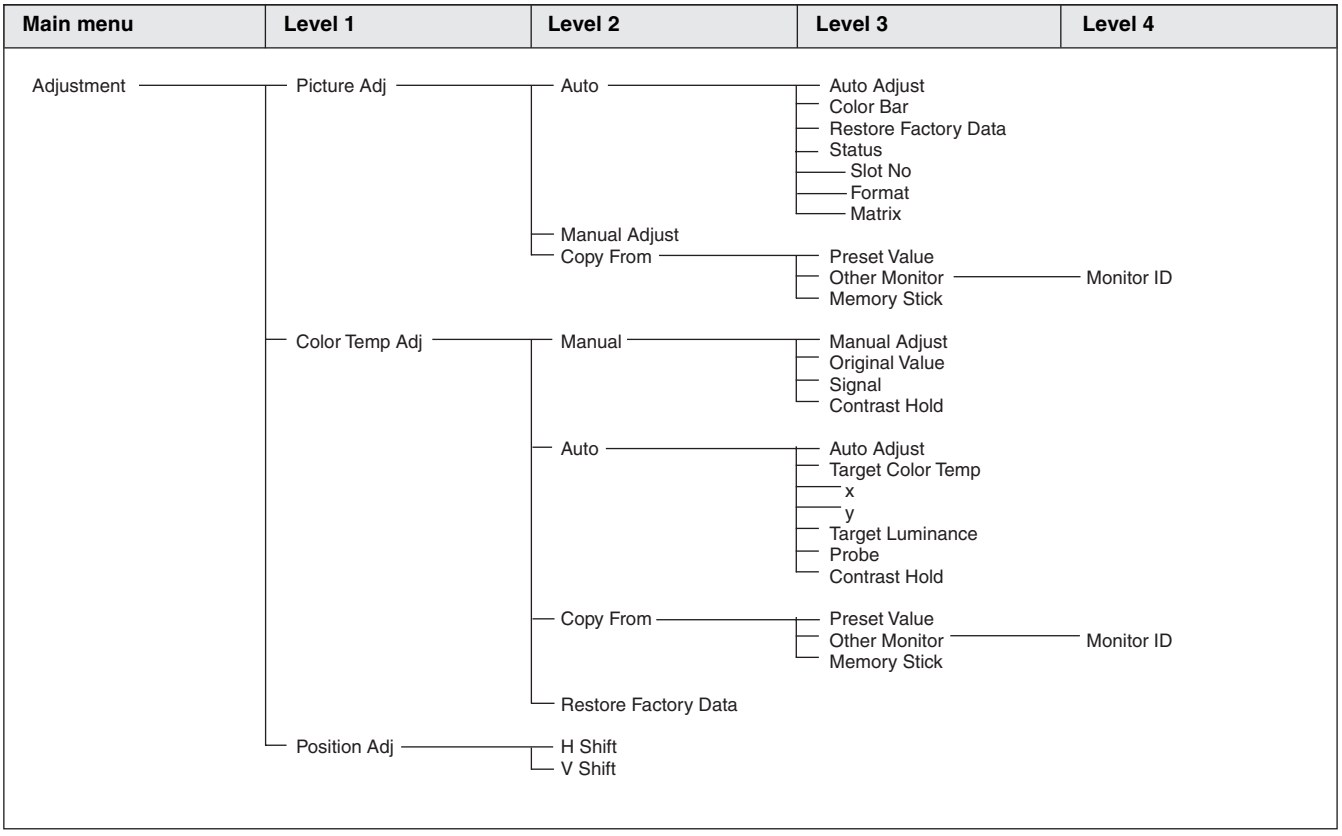
Aborting Menu Operation

Press the MENU button. The menu of the upper level is displayed.
When the MENU button is pressed in setting mode or during adjustment, the menu returns to the previous setting.

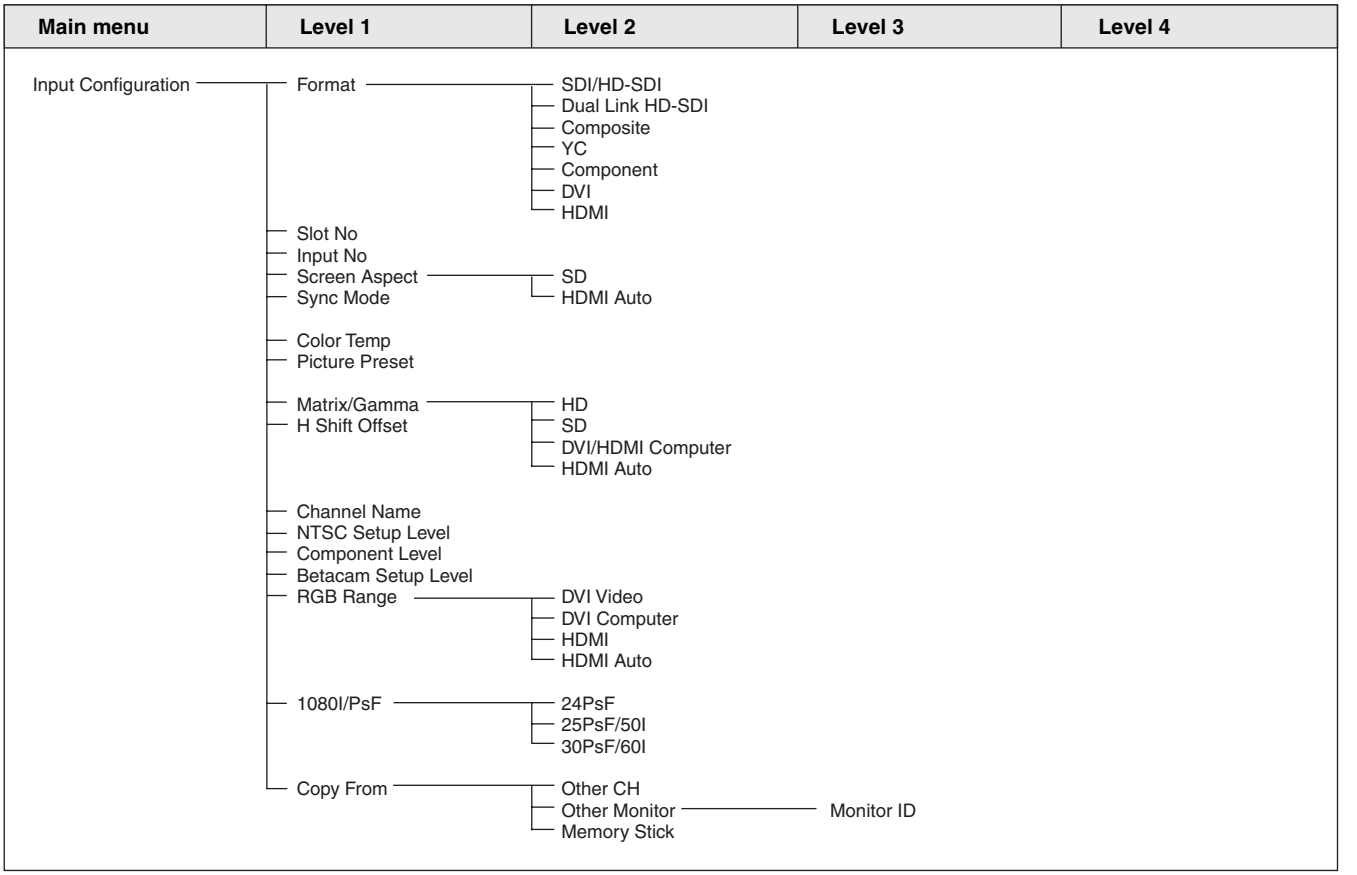
Menu Structure

For details of each menu, see the page in parentheses.

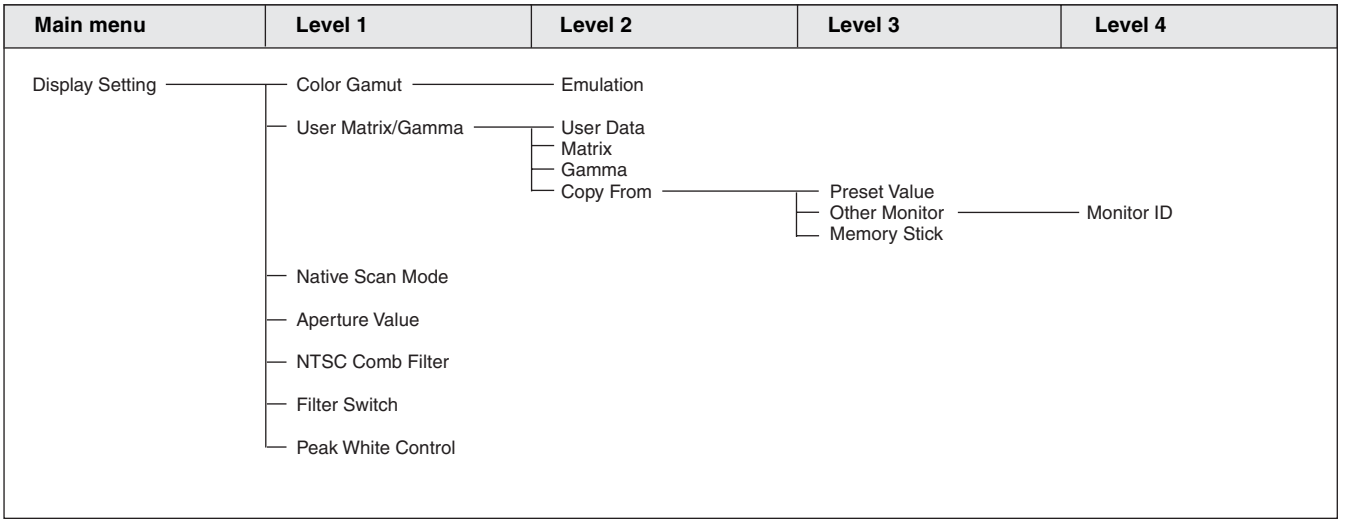
Adjustment menu (page 42)



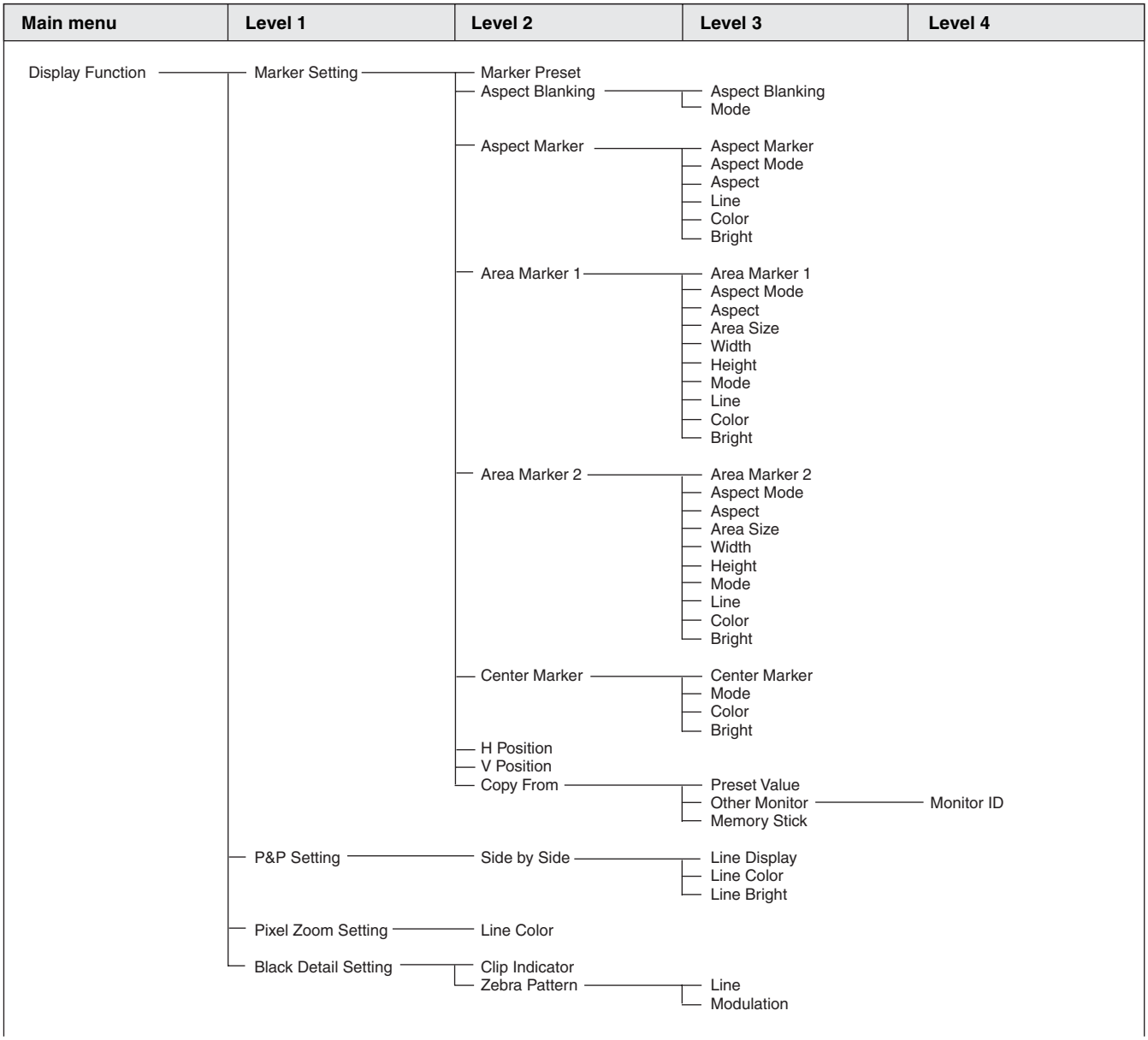
Input Configuration menu (page 48)



Display Setting menu (page 53)

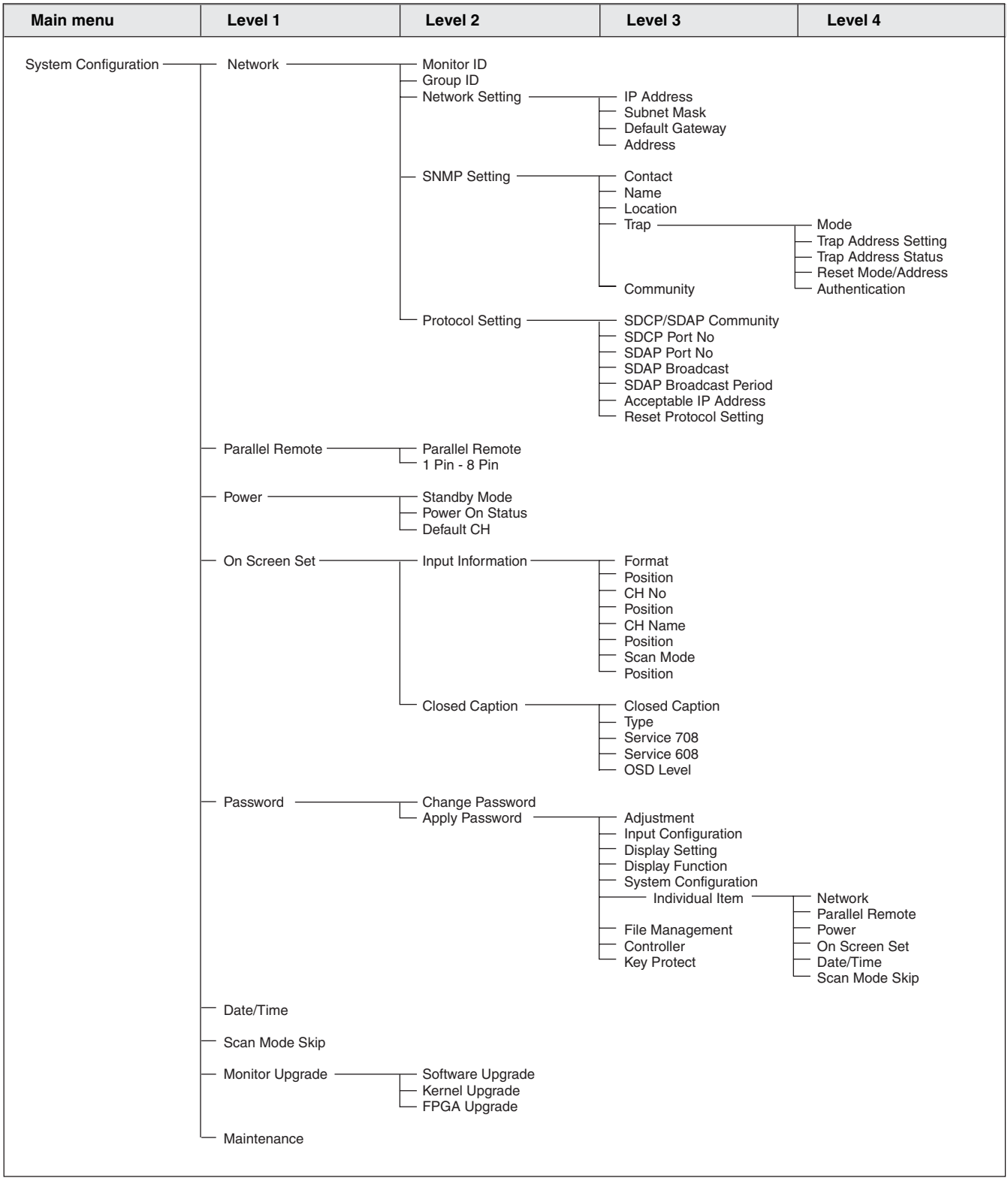


Display Function menu (page 55)



Main menu	Level 1	Level 2	Level 3	Level 4
	Capture	Load		
		Rename		
		Delete		
	Internal Signal			
	Function Switch	Scan Mode		
		Native Scan		
		16:9		
		H Delay		
		V Delay		
		External Sync		
		Comb		
		Aperture		
		Mono		
		Blue Only		
		R Off		
		G Off		
		B Off		
		Chroma Up		
		Black Frame Insertion		
		Interlace		
		Marker		
		Aspect Marker		
		Area Marker 1		
		Area Marker 2		
		Side by Side		
		Black Detail Mode		

System Configuration menu (page 62)



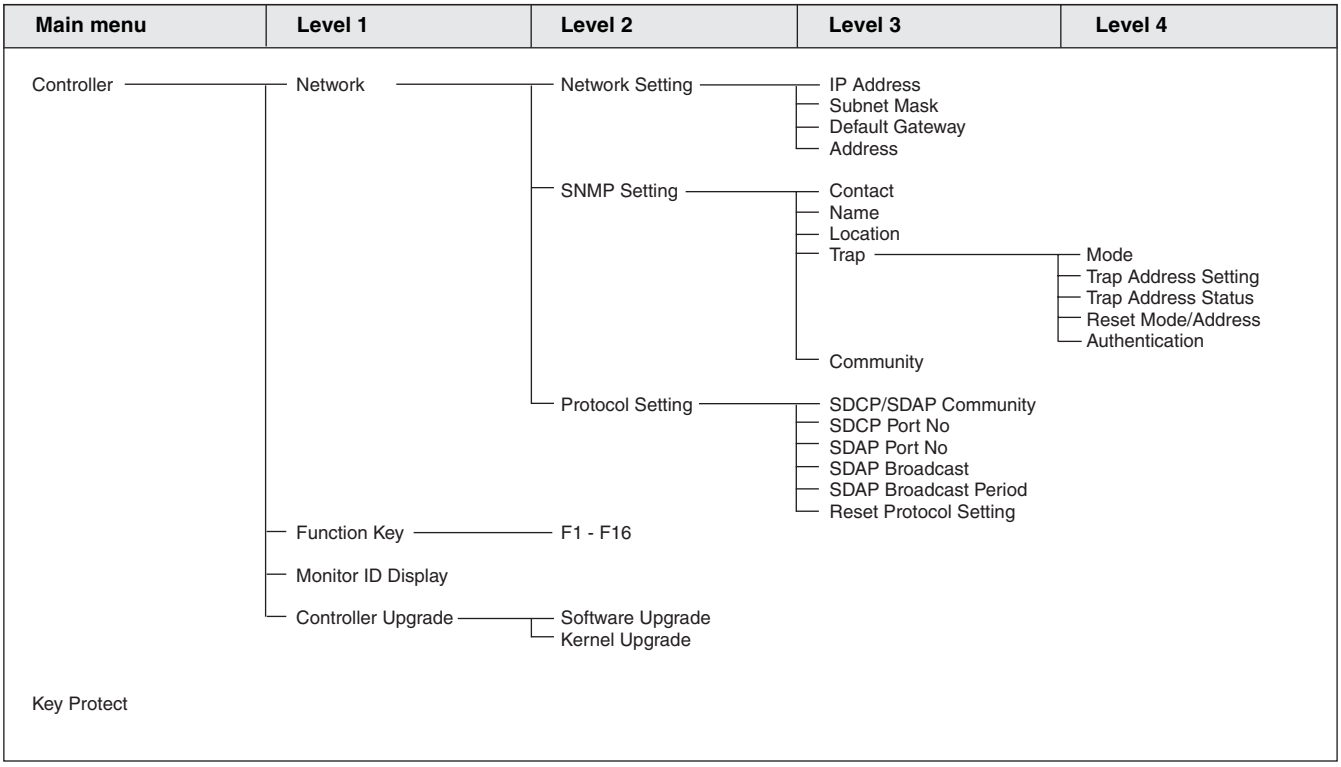
File Management menu (page 68)

Main menu	Level 1	Level 2	Level 3	Level 4
File Management	Save To	Memory Stick		
	Copy From	Other Monitor	Monitor ID	
		Memory Stick		
	Delete	Memory Stick		
	Data Maintenance	Back Up System Data		
		Restore System Data		

Status menu (page 70)

Main menu	Level 1	Level 2	Level 3	Level 4
Status	CH Status			
	Slot Status Option1-Option4	Model Name		
		Serial No		
	HDMI Status	Pixel Encoding		
		Color Depth		
		Matrix/Gamma		
		RGB Range		
	Model Name			
	Serial No			
	Software Version			
	Operation Time			
	Backlight			
	Network Switch			
	Controller Status	Model Name		
		Serial No		
		Software Version		
		Network Switch		

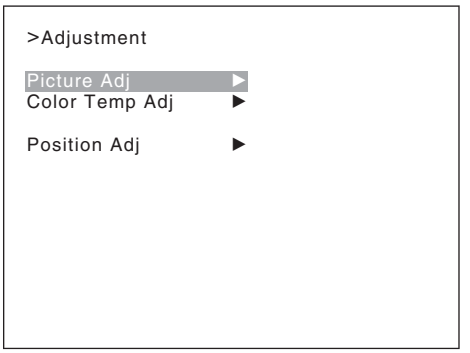
Controller menu (page 72) / Key Protect menu (page 76)



Adjustment Menu

Overview

Adjusts the picture, color temperature, etc.
When Adjustment is selected, the following menu is displayed.



Note

This menu is not selectable in the following cases:
- When Side by Side is set to On

Menu Function and Operation

Menu	Function and operation ([ ]: factory setting)
Picture Adj	Adjusts the chroma, phase, matrix and signal level automatically and contrast, brightness, chroma and phase to set the preset value to picture adjustment preset data. When the item is selected, the picture adjustment preset data to be set is displayed. To change the picture adjustment preset data to be adjusted, you can select from Preset1, Preset2, Preset3, Preset4 and Preset5 in the Picture Preset menu of the Input Configuration menu. *For information about the Input Configuration menu, see page 48.*
Auto	Sets the automatic adjustment of chroma, phase, matrix and signal level. When the item is selected, the selected preset data is displayed. You can select this item when the composite or Y/C signal from the BKM-227W, or the analog component or analog RGB signal from the BKM-229X is displayed. **Note** This menu is not selectable when the internal signal or captured frame is displayed.
Auto Adjust	Starts automatic adjustment. (It may take some time until the automatic adjustment is completed.) An external color-bar signal for the reference is necessary for automatic adjustment (page 43). The chroma data is reset to the default setting **[1000]**. The phase data is reset to the default setting **[000]**. **Note** When the analog component signal or analog RGB signal is input, adjust the picture position in the Position Adj menu (page 47) to perform the automatic adjustment in the Auto Adjust menu. When the picture position does not fit, the adjustment will not be performed correctly and this may cause a malfunction. **To cancel adjustment** Press the MENU button.

Menu			Function and operation ([ ]: factory setting)
Picture Adj		Color Bar	Sets the color-bar signal to input. **[Full Field 8]:** 100% full-field 8-color bars (white, yellow, cyan, green, magenta, red, blue and black) **SMPTE:** SMPTE standard color bars **EIA:** EIA standard color bars (effective for 480/60i and 575/50i signals only) **Multi Format:** Color bars standardized by SMPTE RP219/ARIB STD-B28
		Restore Factory Data	Resets the automatic adjustment data of chroma, phase, matrix and signal level to the default setting. You cannot select this when the setting is the default value. The following message appears. **Restore factory data?** **OK:** To reset the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
		Status	Displays the status of the automatic adjustment data of the chroma, phase, matrix and signal level to be adjusted. **Not Adjusted:** Displays when the data is not adjusted. **Adjusted:** Displays when the data is adjusted.
		Slot No	Displays the input option slot number of the automatic adjustment data to be adjusted.
		Format	Displays the signal format and signal system of the automatic adjustment data to be adjusted.
		Matrix	Displays the matrix of the automatic adjustment data to be adjusted.
	Manual Adjust		Adjusts values by turning the PHASE, CHROMA, BRIGHT, and/or CONTRAST knobs. After adjustment, press the ENTER (Ent) button to confirm the adjusted values. **Phase: –150** to **+150 [000]** **Chroma: 0000** to **2000 [1000]** **Bright: –500** to **+500 [000]** **Contrast: 0000** to **2500 [1000]** **To display no characters on the screen while adjusting manually** Set the CHAR OFF button to on. The characters disappear. To display characters, set the CHAR OFF button to off. **To reset the setting to the default** Press the corresponding MANUAL button. The adjusted value is reset to the default. **To cancel adjustment** Press the MENU button. The adjustment data is cleared. **To confirm adjustment** Press the ENTER (Ent) button.
	Copy From		Copies picture adjustment preset data. **Note** Automatic adjustment data is not copied.
		Preset Value	Copies other data in this monitor. When the item is selected, you can select from **Preset1**, **Preset2**, **Preset3**, **Preset4** or **Preset5**.
		Other Monitor	Copies data from another monitor.
		Monitor ID	Enter the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the ID number is entered, you can select from **Preset1**, **Preset2**, **Preset3**, **Preset4** or **Preset5**.
		Memory Stick	Copies data in the “Memory Stick”. When the item is selected, the file names in the source “Memory Stick” are displayed. When the file is selected, you can select from **Preset1**, **Preset2**, **Preset3**, **Preset4** or **Preset5**.

Menu	Function and operation ([ ]: factory setting)
Color Temp Adj	Adjusts the color temperature. When the item is selected, the color temperature data to be adjusted is displayed. When D93 or D65 data is changed, they are displayed as D93* or D65*. To change the color temperature data to be adjusted, select D93, D65, User1, User2, User3, User4 or User5 in the Color Temp menu of the Input Configuration menu. *For information about the Input Configuration menu, see page 48.*
Manual	Adjusts the color temperature manually. When the item is selected, the color temperature data to be set is displayed. When D93 or D65 data is changed, they are displayed as D93* or D65*. *For information about the Input Configuration menu, see page 48.*
Manual Adjust	Adjusts the color temperature with the adjustment knob. **Note** This menu is not selectable when the contrast is set to less than 400. When the item is selected, the color temperature adjustment display appears and the x and y values of the color temperature data to be adjusted are displayed. **Note** The displayed chromaticity coordinates x and y are reference values and are not guaranteed as absolute values. When Contrast Hold is set to On, the adjustable item and the relevant knobs are as follows. To adjust Red (red): BRIGHT knob To adjust Green (green): CHROMA knob To adjust Blue (blue): PHASE knob When Contrast Hold is set to Off, the adjustable item and the relevant knobs are as follows. To adjust Red (red): BRIGHT knob To adjust Green (green): CHROMA knob To adjust Blue (blue): PHASE knob To adjust Contrast (contrast): CONTRAST knob **To hide the characters on the monitor during manual adjustment** Set the CHAR OFF button of the controller to on. As the characters on the display are hidden, it becomes easy to adjust the picture. To display the characters, set the CHAR OFF button to off. **To reset Red, Green and Blue to the value before adjustment** Press the MANUAL button of BRIGHT, CHROMA or PHASE. The Red, Green and Blue are reset to the value before adjustment. **To reset Contrast to the value before adjustment** Press the MANUAL button of CONTRAST. **Note** You cannot reset the setting after you press the ENTER (Ent) button. **To cancel adjustment** Press the MENU button. The adjustment data is cleared and the setting returns to the previous value. **To confirm adjustment** Press the ENTER (Ent) button.
Original Value	Sets the initial value. You can select from **D93**, **D65**, **User1**, **User2**, **User3**, **User4** or **User5**. When D93 or D65 data is changed, they are displayed as D93* or D65*.
Signal	Sets the white signal to be used for adjustment. **Internal:** Select when an internal signal is used. The signal is automatically switched to the 100% white signal. **[External]:** Select when an external input signal is used. Supply the 100% white signal. **Note** When the signal format set in the Format menu of the Input Configuration menu is DVI Computer or the computer signal of HDMI, this menu is not selectable. Input the 100% white signal.

Menu			Function and operation ([ ]: factory setting)
Color Temp Adj		Contrast Hold	Sets whether or not to adjust the color temperature and contrast (backlight) at the same time. **Off:** Contrast is adjusted. **[On]:** Contrast is not adjusted.
	Auto		Adjusts the color temperature automatically by using an optional probe. When the item is selected, the color temperature data to be adjusted is displayed. When D93 or D65 data is changed, they are displayed as D93* or D65*. When Contrast Hold is set to Off, the color temperature data and contrast data are displayed. The contrast data is displayed as the picture preset data Preset1 to Preset5 set in Picture Preset of the Input Configuration menu, or MANUAL. To change the displayed data from the picture preset data to MANUAL, set the MANUAL button of CONTRAST to on. To change the displayed data from MANUAL to the picture preset data, set the MANUAL button of CONTRAST to off. To change the type of the picture preset data, select from Preset1 to Preset5 in the Picture Preset menu of the Input Configuration menu. *For information about the Input Configuration menu, see page 48.*
		Auto Adjust	Starts adjustment. **Note** This menu is not selectable in the following case: • When DVI Computer or the computer signal of HDMI is selected in the Format menu of the Input Configuration menu Before automatic adjustment, select the value to use for the adjustment in following sequence. When you use the previously adjusted values for adjustment, select **Auto Adjust** to start adjustment without performing step ①, step ② and step ③. ① Select the color temperature to be used in Target Color Temp. When Any is selected, enter the values of the CIE color system x and y coordinates. ② When Contrast Hold is set to Off, select Target Luminance and enter the value of the luminance (cd/m^2) when the 100% white signal is input. ③ Select the probe to be used in Probe. ④ Select Auto Adjust. The following message appears. **Set probe on cursor.** Attach the probe on the center of the display to start automatic adjustment. (It may take some time until the automatic adjustment is completed.) **Note** First select the probe and then select Auto Adjust. **To cancel/stop the adjustment** Press the MENU button.
		Target Color Temp	Sets the adjustment value to be used from **D93**, **D65** or **Any**.
		x	Enters the CIE color system x coordinate. Set to **0.280** to **0.345**.
		y	Enters the CIE color system y coordinate. Set to **0.280** to **0.352**.
		Target Luminance	Enters the luminance (cd/m^2) when the 100% white signal is input. Adjust the luminance by the contrast adjustment (backlight adjustment). Set to **40** to **250**. **[100]** **Notes** • This menu is not selectable when Contrast Hold is set to On. • The luminance is reduced to about half due to the principle of operation in the black frame insertion mode or the interlace display mode. However, on this monitor the normal luminance is set by the contrast adjustment (backlight adjustment). For this reason, as the upper limit of Target Luminance becomes about 120 [cd/m^2], set it to less than 120 [cd/m^2]. • The luminance calibrated internally by the backlight does not guarantee an absolute value and may be different from the luminance calibrated by the probe. When you set Target Luminance near to the upper limit (250) or the lower limit (40), the setting value may exceed the adjustment range and cause an error. If an adjustment error occurs, change Target Luminance and perform the automatic adjustment again.

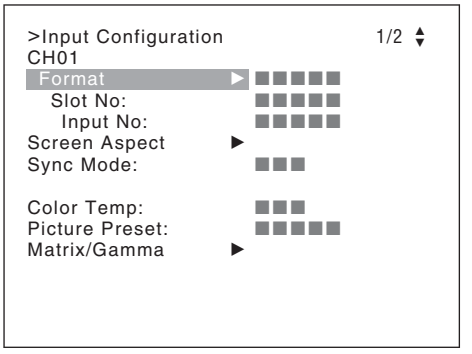
Menu				Function and operation ([ ]: factory setting)
Color Temp Adj		Probe		Selects the probe to be used for automatic adjustment of the color temperature. **[CA-210]:** Select when Konica Minolta CA-210 is used. **PM 5639/06:** Select when DK-Technologies PM 5639/06 is used. **Eye-One Pro:** Select when X-Rite Eye-One Pro is used. The cable to connect the probe and the monitor is required. **About the color temperature after automatic adjustment** The values of x and y displayed by the probe may be different from those set in Target Color Temp because the x and y values of the probe is calibrated by the monitor. **Note** An external PC with USB connector and software for adjusting the color temperature are required to use the Eye-One Pro. Before adjusting the color temperature automatically, start the software for adjusting the color temperature. For the software for adjusting the color temperature, please contact your Sony representative. *For more information about the cable specification required and about the connection, see "Connection Cable Specifications for Color Temperature Probes" on page 119.*
		Contrast Hold		Sets whether or not to adjust the color temperature and contrast (backlight) at the same time. **Off:** Contrast is adjusted. **[On]:** Contrast is not adjusted.
	Copy From			Copies the other color temperature.
		Preset Value		Copies other data in this monitor. When the item is selected, you can select from **D93**, **D65**, **User1**, **User2**, **User3**, **User4** or **User5**. **D93:** Copies the color temperature of D93. **D65:** Copies the color temperature of D65. **User1 to 5:** Copies the color temperature of User1 to 5. When D93 or D65 data is changed, they are displayed as D93* or D65*.
		Other Monitor		Copies data from another monitor.
			Monitor ID	Enter the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the ID number is entered, you can select from **D93**, **D65**, **User1**, **User2**, **User3**, **User4** or **User5**. **D93:** Copies the color temperature of D93. **D65:** Copies the color temperature of D65. **User1 to 5:** Copies the color temperature of User1 to 5. When D93 or D65 data is changed, they are displayed as D93* or D65*.
		Memory Stick		Copies data in the "Memory Stick". When the item is selected, the file names in the source "Memory Stick" are displayed. When the file is selected, you can select from **D93**, **D65**, **User1**, **User2**, **User3**, **User4** or **User5**. **D93:** Copies the color temperature of D93. **D65:** Copies the color temperature of D65. **User1 to 5:** Copies the color temperature of User1 to 5. When D93 or D65 data is changed, they are displayed as D93* or D65*.
	Restore Factory Data			Resets the color temperature to the default setting. You cannot select this when the setting is the default value. The following message appears to confirm the data reset operation. **Restore factory data?** **OK:** To reset the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.

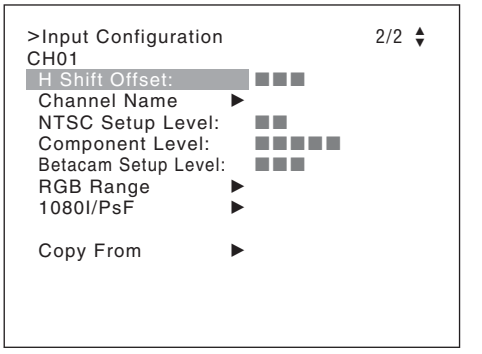
Menu		Function and operation ([ ]: factory setting)
Position Adj		Adjusts the position of the picture when the analog signal is input. When the item is selected, the signal system to be set is displayed. You can select the item when the composite or Y/C signal from the BKM-227W, or the analog component or analog component RGB signal from the BKM-229X is displayed. **To hide the characters on the monitor during adjustment** Set the CHAR OFF button of the controller to on. As the characters on the display are hidden, it becomes easy to adjust the picture. To display the characters, set the CHAR OFF button to off. **Note** This menu is not selectable when the internal signal or captured frame is displayed.
	H Shift	Adjusts the horizontal position of the picture. As the setting increases, the picture moves to the right, and as the setting decreases, the picture moves to the left. **[000]** Set in the H Shift Offset menu (page 51) of the Input Configuration menu when the difference of the horizontal position is necessary to adjust for different input signals of the same signal system, etc.
	V Shift	Adjusts the vertical position of the picture. As the setting increases, the picture moves up, and as the setting decreases, the picture moves down. **[000]**

Input Configuration Menu

Overview

This menu is used for pertaining data to the input signals.
When Input Configuration is selected, the following menus are displayed.





The current channel is displayed. Perform the input setting for the selected channel.

Before setting

Set the input signal for each channel. A channel number (1 to 30) is entered with the numeric buttons (page 34).

Note

This menu is not selectable in the following cases:
- When Side by Side is set to On

Menu Function and Operation

Menu	Function and operation ([ ]: factory setting)
Format	Sets the input signal type. **Note** The default setting is HD-SDI/D1 Auto. Set Format except for when the BKM-243HS or BKM-244CC is installed.
SDI/HD-SDI	Sets the serial digital signal format (SDI or Single-link HD-SDI) when BKM-220D, BKM-243HS or BKM-244CC is installed. **When BKM-220D is installed** **D1** **When BKM-243HS or BKM-244CC is installed** **[HD-SDI/D1 Auto]:** Changes the format automatically according to the format of the input signal. **D1**
Dual Link HD-SDI	Sets the Dual-link HD-SDI signal format when two BKM-243HS or BKM-244CC are installed in the OPTION 1 and 2 or OPTION 3 and 4 option slots. **4:2:2 YPbPr 10bit** **4:4:4 YPbPr 10bit** **4:4:4 RGB 10bit** **4:4:4 YPbPr 12bit** **4:4:4 RGB 12bit**

Menu		Function and operation ([ ]: factory setting)
Format	Composite	Sets the composite signal format when BKM-227W is installed. **Auto:** Changes automatically according to the format of the input signal. It will take a few seconds to detect the format of an input signal. It is recommended that a particular format be selected if it is determined. **NTSC** **PAL** **PAL-M** **SECAM**
	YC	Sets the Y/C signal format when BKM-227W is installed. **Auto:** Changes automatically according to the format of the input signal. It will take a few seconds to detect the format of an input signal. It is recommended that a particular format be selected if it is determined. **NTSC** **PAL** **PAL-M** **SECAM**
	Component	Sets the analog component signal format or analog RGB signal format when BKM-229X is installed. You can select from **YPbPr** or **RGB**.
	DVI	Sets the DVI signal format. **Video:** Displays the CEA-861 signal. **Computer:** Displays the computer output signal such as the VESA standard signal. *For each signal format to be displayed, see page 95.*
	HDMI	Sets the HDMI signal format. The 800 × 600, 1024 × 768, 1280 × 960, 1280 × 1024 and 1400 × 1050 signals are HDMI computer signals in this manual. *For the signal format to be displayed, see page 97.*
Slot No		Enters the option slot number. You can select from **Option1** to **Option4**, **Option1&2** or **Option3&4**. **Adaptor and the item to be selected** **Option1** to **Option4** • When the BKM-243HS or BKM-244CC is installed and Format is set to HD-SDI/D1 Auto • When the BKM-220D, BKM-243HS or BKM-244CC is installed and Format is set to D1 • When the BKM-227W is installed and Format is set to Composite Auto, Composite NTSC, Composite PAL, Composite PAL-M, Composite SECAM, YC Auto, YC NTSC, YC PAL, YC PAL-M or YC SECAM • When the BKM-229X is installed and Format is set to Component YPbPr or Component RGB **Option1&2**, **Option3&4** • When two BKM-243HS or BKM-244CC are installed in the OPTION 1 and 2 or OPTION 3 and 4 option slots and Format is set to 4:2:2 YPbPr 10bit, 4:4:4 YPbPr 10bit, 4:4:4 RGB 10bit, 4:4:4 YPbPr 12bit or 4:4:4 RGB 12bit **Note** When the setting of Format and the installed adaptor do not match, the setting value may not be changed. Set the Format correctly according to the installed adaptor.
Input No		Enters the input connector number. You can select from **[Input 1]** or **Input 2**. You can select when Format is set to HD-SDI/D1 Auto, D1, 4:2:2 YPbPr 10bit, 4:4:4 YPbPr 10bit, 4:4:4 RGB 10bit, 4:4:4 YPbPr 12bit or 4:4:4 RGB 12bit. **Note** When the setting of Format and the installed adaptor do not match, the setting value may not be changed. Set the Format correctly according to the installed adaptor.
Screen Aspect		Selects the aspect ratio. **Note** This menu is not selectable when Format is set to DVI Computer.
	SD	Sets the aspect ratio of the SD signal. You can select from **[16:9]** or **4:3**.

<table>
<tr><th colspan="2">Menu</th><th>Function and operation ([ ]: factory setting)</th></tr>
<tr><td rowspan="2">Screen Aspect</td><td>HDMI Auto</td><td>Sets the manual or automatic setting for the aspect ratio of the HDMI signal.
Off: Select to set the aspect ratio manually with the controller, etc.
[On]: Select to set the aspect ratio automatically according to the input signal. The aspect ratio is not set with the controller, etc.</td></tr>
<tr><td colspan="2">Sync Mode</td><td>Sets the sync signal when the analog component signal or analog RGB signal is input.
You can select when Format is set to Component YPbPr or Component RGB.
[Internal]: Select when an internal sync signal is used.
External: Select when an external sync signal is used.</td></tr>
<tr><td colspan="2">Color Temp</td><td>Sets the color temperature.
You can select from D93, D65 or User1 to User5.
When D93 or D65 data is changed, they are displayed as D93* or D65*.</td></tr>
<tr><td colspan="2">Picture Preset</td><td>Sets the picture adjustment preset.
Select from Preset1 to Preset5.</td></tr>
<tr><td colspan="2">Matrix/Gamma</td><td>Sets Matrix/Gamma data (transmission matrix and transmission gamma) depending on the input signal format.
Matrix/Gamma data are seven data in which the transmission matrix and transmission gamma have been preset and five user data in which the transmission matrix and transmission gamma can be selected respectively (see below table).
Preset data: ITU-R BT.709, ITU-R BT.601, SMPTE 240M, xvYCC 709, xvYCC 601
Data set respectively: User1 to User5
The Matrix/Gamma data can be set for each type of the input signal (HD, SD or DVI/HDMI Computer).
For the type of the input signal, see “Matrix/Gamma Setting Table” (page 105).

<table>
<tr><th>Matrix/Gamma</th><th>Matrix (Transmission matrix)</th><th>Gamma (Transmission gamma)</th></tr>
<tr><td>ITU-R BT.709</td><td>ITU709</td><td>2.2</td></tr>
<tr><td>ITU-R BT.601</td><td>ITU601</td><td>2.2</td></tr>
<tr><td>SMPTE 240M</td><td>SMPTE240M</td><td>2.2</td></tr>
<tr><td>xvYCC 709</td><td>ITU709</td><td>xvYCC</td></tr>
<tr><td>xvYCC 601</td><td>ITU601</td><td>xvYCC</td></tr>
<tr><td>User1 to User5</td><td>ITU709
ITU601
SMPTE240M
Select above three types.</td><td>2.2
xvYCC
Select above two types.</td></tr>
</table>
Matrix/Gamma data
ITU-R BT.709: Select when the signal of the ITU-R BT.709 standards format is input.
ITU-R BT.601: Select when the signal of the ITU-R BT.601 standards format is input.
SMPTE 240M: Select when the signal of the SMPTE-240M standards format is input.
xvYCC 709: Select when the IEC 61966-2-4 standards (xvYCC) and the transmission matrix ITU-R BT.709 standards format signal is input.
xvYCC 601: Select when the IEC 61966-2-4 standards (xvYCC) and the transmission matrix ITU-R BT.601 standards format signal is input.
User1 - User5: Select when the transmission matrix and transmission gamma is set individually depending on the input signal format.
Notes
• When you select xvYCC 709 or xvYCC 601, set Emulation (page 53) to PVM-L2300 Native in the Color Gamut menu of the Display Setting menu to display the extended color gamut area.
• For setting the user data (User1 to User5) of Matrix/Gamma, see the User Matrix/Gamma menu (page 53) of the Display Setting menu.</td></tr>
</table>

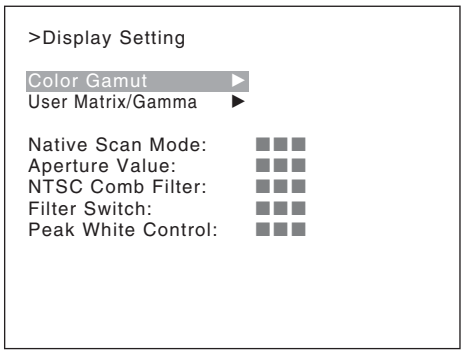
Menu		Function and operation ([ ]: factory setting)
Matrix/Gamma		**Transmission matrix** **ITU709:** Matrix of ITU-R BT.709 standards **ITU601:** Matrix of ITU-R BT.601 standards **SMPTE240M:** Matrix of SMPTE-240M standards **Note** The internal fixed value applies to the transmission matrix of the RGB format. **Transmission gamma** **2.2:** Transmission gamma 2.2 **xvYCC**: Transmission gamma of IEC 61966-2-4 standards (xvYCC) **Notes** • When you select xvYCC, set Emulation (page 53) to PVM-L2300 Native in the Color Gamut menu of the Display Setting menu to display the extended color gamut area. • When the quantization range of the DVI/HDMI signal is Full, the internal fixed value of the transmission gamma is applied.
	HD	Sets Matrix/Gamma of the HD signal. You can select from **[ITU-R BT.709]**, **ITU-R BT.601**, **SMPTE 240M**, **xvYCC 709**, **xvYCC 601** or **User1** to **User5**.
	SD	Sets Matrix/Gamma of the SD signal. You can select from **ITU-R BT.709**, **[ITU-R BT.601]**, **SMPTE 240M**, **xvYCC 709**, **xvYCC 601** or **User1** to **User5**.
	DVI/HDMI Computer	Sets Matrix/Gamma of the DVI/HDMI Computer signal. You can select from **[ITU-R BT.709]**, **ITU-R BT.601**, **SMPTE 240M**, **xvYCC 709**, **xvYCC 601** or **User1** to **User5**.
	HDMI Auto	Sets the manual or automatic setting for the transmission matrix/transmission gamma of the HDMI signal. **Off:** Select to use Matrix/Gamma set in the HD, SD or DVI/HDMI Computer menu. **[On]:** Select to set Matrix/Gamma automatically according to the input signal. **Note** When HDMI Auto is set to On and the signal of which the format is RGB and transmission gamma is xvYCC is input, transmission gamma is set to the value fixed inside the monitor.
H Shift Offset		Sets the horizontal picture position when the analog signal is input. You can select when Format is set to Composite Auto, Composite NTSC, Composite PAL, Composite PAL-M, Composite SECAM, YC Auto, YC NTSC, YC PAL, YC PAL-M, YC SECAM, Component YPbPr or Component RGB. Set to **–100** to **+100***. **[000]** *When the setting value is out of range, the display of the setting value is changed but the horizontal position of the picture is not changed. **To hide the characters on the monitor during adjustment** Set the CHAR OFF button of the controller to on. As the characters on the display are hidden, it becomes easy to adjust the picture. To display the characters, set the CHAR OFF button to off.
Channel Name		Sets a channel name. When the item is selected, you can select a preset name, or enter a new one. **PROG:** Program signal **EDIT:** Signal from an editor **CAM:** Camera signal **VTR:** Signal from a VTR **PREV:** Preview monitor **New Name:** Enter a new name. (Up to 20 characters can be entered.)
NTSC Setup Level		Sets the NTSC setup level. You can select when Format is set to Composite Auto, Composite NTSC, YC Auto or YC NTSC. You can select from **0%** or **7.5%**.
Component Level		Sets the component level of the analog component 480/60i signal. You can select when Format is set to Component YPbPr. You can select from **SMPTE/EBU-N10** or **Betacam**.
Betacam Setup Level		Sets the Betacam setup level when Component Level is set to Betacam. You can select from **0%** or **7.5%**.

Menu			Function and operation ([ ]: factory setting)
RGB Range			Sets the quantization range of the DVI or HDMI input signal. You can select when Format is set to DVI Video, DVI Computer or HDMI.
	DVI Video		Sets the display mode for the DVI Video signal. **Full:** 0 (black level) to 255 (white level) (8bit) **[Limit]:** 16 (black level) to 235 (white level) (8bit)
	DVI Computer		Sets the display mode for the DVI Computer signal. **[Full]:** 0 (black level) to 255 (white level) (8bit) **Limit:** 16 (black level) to 235 (white level) (8bit)
	HDMI		Sets the display mode for the HDMI signal. **Full:** 0 (black) to 255 (8bit)/1023 (10bit)/4095 (12bit) (white level) **[Limit]:** 16 (8bit)/64 (10bit)/256 (12bit) (black level) to 235 (8bit)/940 (10bit)/3760 (12bit) (white level)
	HDMI Auto		Sets the manual or automatic setting for the quantization range of the HDMI signal. **Off:** Select to use the quantization range set in the HDMI menu. **[On]:** Select to set the quantization range automatically according to the input signal.
1080I/PsF			When the 1080i/PsF signal is input, select the display mode. You can select when Format is set to HD-SDI/D1 Auto, 4:2:2 YPbPr 10bit, 4:4:4 YPbPr 10bit, 4:4:4 RGB 10bit, 4:4:4 YPbPr 12bit, 4:4:4 RGB 12bit, Component YPbPr or Component RGB. When 1080I is selected, the I/P conversion signal is displayed. When 1080PsF is selected, the progressive conversion (PsF to P) signal is displayed. When the 1080PsF signal is input and 1080I is selected, the display delay is shortened. The signal converted from PsF to P is not displayed and the I/P conversion signal is displayed.
	24PsF		Sets the display mode for the 1080/24PsF signal. You can select from **1080I** or **[1080PsF]**.
	25PsF/50I		Sets the display mode for the 1080/25PsF, 50i signal. You can select from **[1080I]** or **1080PsF**.
	30PsF/60I		Sets the display mode for the 1080/30PsF, 60i signal. You can select from **[1080I]** or **1080PsF**.
Copy From			Copies signal setting data from other channel.
	Other CH		Copies other data in this monitor. When the item is selected, you can designate the channel to be copied.
	Other Monitor		Copies data from other monitor.
		Monitor ID	Enters the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the item is selected, you can designate the source monitor. When the ID number is entered, you can designate the channel to be copied.
	Memory Stick		Copies data in the “Memory Stick”. When the item is selected, the file names in the source “Memory Stick” are displayed. When the file is selected, you can enter the channel number in the selected file.

Display Setting Menu

Overview

This menu is used for setting the monitor condition such as the color reproduction or frame.
When Display Setting is selected, the following menu is displayed.



Menu Function and Operation

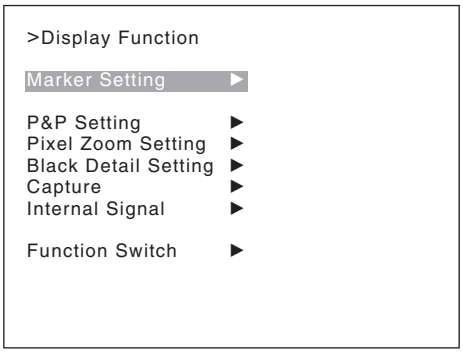
Menu	Function and operation ([ ]: factory setting)
Color Gamut	As the PVM-L2300 is equipped with the wider color space backlight, the signal can be displayed (emulation) in the color gamut (color space and gamma) selected in the Emulation menu.
Emulation	Sets the used color gamut (color space and gamma). **BVM SMPTE-C:** Displays in the color gamut of BVM-A24 SMPTE-C phosphor CRT. **BVM EBU:** Displays in the color gamut of BVM-A24 EBU phosphor CRT. **ITU-R BT.709:** Displays in the color gamut of three primary colors chromaticity point provided by ITU-R BT.709. **PVM-L2300 Native:** Displays in the color gamut of the PVM-L2300 individual three primary colors chromaticity point. This is the widest color space setting of the signal reproduced by the PVM-L2300.
User Matrix/Gamma	Sets the user data (User1 to User5) of Matrix/Gamma (transmission matrix and transmission gamma). As the signal is processed internally by the data setting of Matrix/Gamma, the signal may not be displayed correctly, if the signal is not set according to the transmission standards for the input signal. For the transmission gamma and the transmission matrix of Matrix/Gamma, see the Matrix/Gamma menu (page 50) of the Input Configuration menu.
User Data	Selects the user data of Matrix/Gamma. You can select from **User1** to **User5**. **[User1]**
Matrix	Sets the transmission matrix. **[ITU709]:** Matrix of ITU-R BT.709 standards **ITU601:** Matrix of ITU-R BT.601 standards **SMPTE 240M:** Matrix of SMPTE-240M standards **Note** The internal fixed value applies to the transmission matrix of the RGB format.

Menu				Function and operation ([ ]: factory setting)
User Matrix/Gamma	Gamma			Sets the transmission gamma. **[2.2]:** Transmission gamma 2.2 **xvYCC:** Transmission gamma of IEC 61966-2-4 standards (xvYCC) **Notes** • When you select xvYCC, set Emulation (page 53) to PVM-L2300 Native in the Color Gamut menu of the Display Setting menu to display the extended color gamut area. • When the quantization range of the DVI or HDMI signal is Full, the internal fixed value of the transmission gamma is applied.
	Copy From			Copies the user data from the other Matrix/Gamma.
		Preset Value		Copies other data in this monitor. When the item is selected, you can select from **User1**, **User2**, **User3**, **User4** or **User5**.
		Other Monitor		Copies data from another monitor.
			Monitor ID	Enter the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the ID number is entered, you can select from **User1**, **User2**, **User3**, **User4** or **User5**.
		Memory Stick		Copies data in the “Memory Stick”. When the item is selected, the file names in the source “Memory Stick” are displayed. When the file is selected, you can select from **User1**, **User2**, **User3**, **User4** or **User5**.
Native Scan Mode				Sets the native scan mode. **[Aspect Correction]:** Displaying an SD signal of non-square pixels (the number of H pixels of the signal system is 720 or 1440) or a 640 × 480 SD signal of DVI video/HDMI video by scaling processing of doubling for the V direction and correct aspect ratio for the H direction and also optimizing and displaying a picture by modifying the aperture coefficient value, filter coefficient value, etc. **×1:** Input signal display without conversion **×2:** Input signal display doubled For selecting Aspect Correction, ×1 or ×2, see “Picture Display Size” on page 99. **Notes** • When an HD signal, DVI computer signal or computer signal of HDMI is input, the signal is displayed in ×1 mode, even if the mode is set to Aspect Correction or ×2. • When an SD signal from the BKM-229X is input and the number of the H pixels of the signal system is 1440, the signal is displayed in ×2 mode, even if the mode is set to ×1. • When you select Aspect Correction and set Native Scan to On for SD signal input, Aperture is set to On (factory setting).
Aperture Value				Sets the aperture modification value. Sets to **000** to **200**. **[090]** (when the signal is displayed in Aspect Correction mode of the native display), **[000]** (when the signal is displayed in mode other than Aspect Correction of the native display)
NTSC Comb Filter				Sets the type of NTSC filter. You can select from **[3Lines]** or **3D**. When the BKM-227W is installed, you can select the item.
Filter Switch				Sets whether or not to turn on the Y/C separation filter (**[Off]** or **On**) when the picture is set to monochrome mode. When the BKM-227W is installed, you can select the item.
Peak White Control				When the brightness is increased, using the brightness adjustment, the picture may be clipped, because of the dynamic range of the circuit. Sets whether or not to control the signal gain automatically according to the setting value of the brightness, to prevent such clipping (**Off** or **[On]**).

Display Function Menu

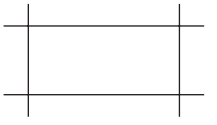
Overview

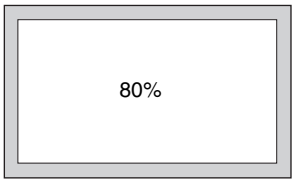
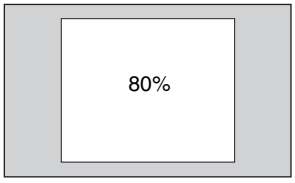
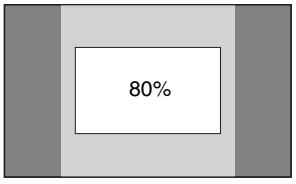
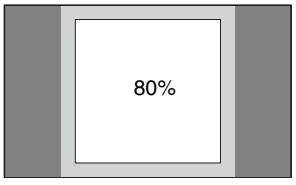
This menu is used to set the function related to the picture display.
When Display Function is selected, the following menu is displayed.



Menu Function and Operation

Menu			Function and operation ([ ]: factory setting)
Marker Setting			Sets whether or not to display the marker when the MARKER button is pressed, and the display mode. **To hide the characters on the monitor during setting** Set the CHAR OFF button of the controller to on. As the characters on the display are hidden, it becomes easy to adjust the picture. To display the characters, set the CHAR OFF button to off.
	Marker Preset		Sets the marker preset data. You can select from **Marker1** to **Marker5**. **[Marker1]**
	Aspect Blanking		Sets the display of the blanking outside the area of the aspect marker.
		Aspect Blanking	Sets whether or not to set the blanking. **[Off]:** Blanking is released. **On:** Blanking.
		Mode	Sets the blanking mode when Aspect Blanking is set to On. You can select from **Black** (blanking) or **[Half]** (half blanking).
	Aspect Marker		Sets the aspect marker display.
		Aspect Marker	Sets whether or not to display the aspect marker when the MARKER button is pressed (**[Off]** or **On**).
		Aspect Mode	Sets the aspect ratio of the aspect marker. You can select from **[16:9]**, **4:3** or **Variable**.
		Aspect	Sets the aspect ratio of the aspect marker when Variable is selected in Aspect Mode. Set to **1.00**:1 to **3.00**:1. **[1.78]**:1
		Line	Sets the thickness of the aspect marker. You can select from **[Thick]** (thick) or **Thin** (thin).
		Color	Sets the color of the aspect marker. You can select from **[White]** (white), **Red** (red), **Green** (green), **Blue** (blue), **Yellow** (yellow), **Cyan** (cyan) or **Magenta** (magenta).
		Bright	Sets the luminance of the aspect marker. You can select from **[90IRE]** (bright) or **40IRE** (dark).

Menu			Function and operation ([ ]: factory setting)
Marker Setting	Area Marker 1		Sets the area marker 1.
		Area Marker 1	Sets whether or not to display the area marker 1 when the MARKER button is pressed (**Off** or **[On]**)*. * Area Marker 2: (**[Off]**, **On**)
		Aspect Mode	Sets the aspect ratio of the area marker 1. You can select from **[16:9]**, **4:3** or **Variable**. **Note** When Variable (dot) is selected in Area Size, the size of the area marker 1 is set in pixel unit of the input signal and the Aspect Mode setting becomes invalid.
		Aspect	Sets the aspect ratio of the area marker 1 when Variable is selected in Aspect Mode. Set to **1.00**:1 to **3.00**:1. **[1.78]**:1
		Area Size	Sets the size of the area marker 1. You can select from **[80%]**, **88%**, **90%**, **93%**, **Variable (%)** or **Variable (dot)**.
		Width	Sets the width of the area marker 1 when Area Size is set to Variable (%) or Variable (dot). **When Variable (%) is selected** Set to **050** to **100** (%). **[080]** **When Variable (dot) is selected** Set to **0360** to **1920** (dot). **[0512]**
		Height	Sets the height of the area marker 1 when Area Size is set to Variable (%) or Variable (dot). **When Variable (%) is selected** Set to **050** to **100** (%). **[080]** **When Variable (dot) is selected** Set to **0240** to **1080** (dot). **[0384]**
		Mode	Sets the shape of the area marker 1. You can select from **[Shape A]**, **Shape B** or **Shape C**. **Shape A** **Shape B** **Shape C**  **Note** The size of the area is as follows depending on the Aspect Mode and 16:9 On/Off setting.

Menu			Function and operation ([ ]: factory setting)
Marker Setting			**Example: Area Size 80%, Aspect Mode 16:9 or 4:3** **With 16:9**  Aspect Mode 16:9  Aspect Mode 4:3 **With 4:3**  Aspect Mode 16:9  Aspect Mode 4:3
		Line	Sets the thickness of the area marker 1. You can select from **[Thick]** (thick) or **Thin** (thin).
		Color	Sets the color of the area marker 1. You can select from **[White]** (white), **Red** (red), **Green** (green), **Blue** (blue), **Yellow** (yellow), **Cyan** (cyan) or **Magenta** (magenta).
		Bright	Sets the luminance of the area marker 1. You can select from **[90IRE]** (bright) or **40IRE** (dark).
	Area Marker 2		Sets the area marker 2. The set items are the same as for Area Marker 1 (page 56).
	Center Marker		Sets the center marker.
		Center Marker	Sets whether or not to display the center marker (**[Off]** or **On**).
		Mode	Sets the display mode of the center marker. You can select from **[Short]** (short) or **Long** (long).
		Color	Sets the color of the center marker. You can select from **[White]** (white), **Red** (red), **Green** (green), **Blue** (blue), **Yellow** (yellow), **Cyan** (cyan) or **Magenta** (magenta).
		Bright	Sets the luminance of the center marker. You can select from **[90IRE]** (bright) or **40IRE** (dark).
	H Position		Sets the horizontal position of the marker. Set to **–65** (leftward) to **+65** (rightward). **[00]**
	V Position		Sets the vertical position of the marker. Set to **–35** (downward) to **+35** (upward). **[00]**
	Copy From		Copies the other marker preset data.
		Preset Value	Copies other data in this monitor. When the item is selected, you can select from **Marker1**, **Marker2**, **Marker3**, **Marker4** or **Marker5**.

Menu	Function and operation ([ ]: factory setting)
Marker Setting – Other Monitor	Copies data from another monitor.
Marker Setting – Other Monitor – Monitor ID	Enter the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the ID number is entered, you can select from **Marker1**, **Marker2**, **Marker3**, **Marker4** or **Marker5**.
Marker Setting – Memory Stick	Copies data in the “Memory Stick”. When the item is selected, the file names in the source “Memory Stick” are displayed. When the file is selected, you can select from **Marker1**, **Marker2**, **Marker3**, **Marker4** or **Marker5**.
P&P Setting	Sets the multi display setting.
Side by Side	Sets the side by side display.
Line Display	Sets display mode of the boundary line. **[Off]:** Not displayed. **On:** Always displayed.
Line Color	Sets the boundary line color of two pictures. You can select from **[White]** (white), **Red** (red), **Green** (green), **Blue** (blue), **Yellow** (yellow), **Cyan** (cyan), **Magenta** (magenta) or **Black** (black).
Line Bright	Sets the luminance of the boundary line. You can select from **[90IRE]** (bright) or **40IRE** (dark).
Pixel Zoom Setting	Sets the pixel zoom.
Line Color	Sets the boundary line color. You can select from **[White]** (white), **Red** (red), **Green** (green), **Blue** (blue), **Yellow** (yellow), **Cyan** (cyan) or **Magenta** (magenta) or **Black** (black).
Black Detail Setting	Sets the black detail mode.
Clip Indicator	Sets whether or not to display a zebra pattern in the clipped portions with high color gradation on the black detail mode display (**Off** or **[On]**).
Zebra Pattern	Sets the zebra pattern displayed in the clipped portions.
Zebra Pattern – Line	Sets the direction of the pattern. **[Diagonal Type1]:** Right descending **Diagonal Type2:** Left descending
Zebra Pattern – Modulation	Sets the amplitude of the pattern display. Set to **1** to **50**. **[16]**
Capture	Captures the still picture for the standard of the color evaluation.
Load	Loads the captured picture from the “Memory Stick”. When the item is selected, you can select the file name to be loaded.
Rename	Changes a file name of the captured picture in the “Memory Stick”. When the item is selected, the file names are displayed. When the file name is selected, you can change the file name (1 to 20 characters). **Existing file name:** Enter the existing file name. **New Name:** Enter a new file name. **Note** The “.” must not be used as the first character.
Delete	Deletes the file of the captured picture in the “Memory Stick”. When the item is selected, the file names in the “Memory Stick” are displayed. When the file name is selected, the following message appears. **Delete this file?** **OK:** To delete the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.

Menu	Function and operation ([ ]: factory setting)
Internal Signal	Selects the internal signal display. You can select from **PLUGE**, **Gray** (20% gray signal), **White** (100% white signal), **5 step** (5 step gray scale signal), **Ramp**, **Color Bars** or **Black** (0% black signal). To cancel the internal signal, select one from the channel numbers 1 to 30 with the numeric buttons of the controller. **Note** Internal Signal is not set in the following cases: • When the DVI Computer format signal or HDMI computer signal is input • When Side by Side is set to On
Function Switch	Sets the function to be assigned to the function button of the controller in the menu.
Scan Mode	Sets the scan size of the picture. **[Normal Scan]:** Normal scan **Under Scan:** 3% under scan **Over Scan:** Mask of 5% over scan portion in the normal scan **Note** The scan size is not selectable in the following cases: • When Native Scan is set to On • When the input signal has no sync signal • When the internal signal is displayed • When Side by Side is set to On
Native Scan	Sets whether or not to display the native scan (**[Off]** or **On**). **Note** The native scan is not selectable in the following cases: • When the input signal has no sync signal • When Side by Side is set to On • When Pixel Zoom is set to on • When Format of the Input Configuration menu is set to DVI Computer (The native scan is displayed regardless of the setting.) • When the HDMI computer signal is input (The native scan is displayed regardless of the setting.) • When the signal system is the SD signal of 720 × 576 or 1440 × 576, Native Scan Mode is set to Aspect Correction and the internal signal of the aspect ratio 16:9 is displayed (Native Scan is set to Off and the normal scan is displayed regardless of the setting.)
16:9	Sets whether or not to display the aspect in 16:9 (**Off** or **[On]**). **Notes** • The aspect ratio is not selectable in the following cases: - When Native Scan Mode is set to ×1 or ×2 and Native Scan is set to On - When the input signal has no sync signal • The aspect ratio may be fixed due to the signal format. For details, see “Available Signal Formats” on page 93.
H Delay	Sets whether or not to display in H delay (**[Off]** or **On**). When the 720/24, 25, 30P signal is input, the display position is changed with the PHASE knob. **Note** The picture is not displayed in H delay in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Video, DVI Computer or HDMI • When Side by Side is set to On • When the captured frame is displayed
V Delay	Sets whether or not to display in V delay (**[Off]** or **On**). **Note** The picture is not displayed in V delay in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Video, DVI Computer or HDMI • When Side by Side is set to On • When the captured frame is displayed

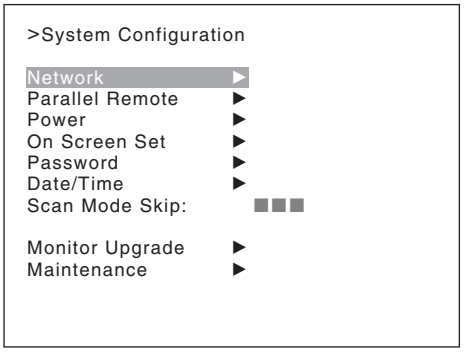
Menu		Function and operation ([ ]: factory setting)
Function Switch	External Sync	Sets whether or not to select external sync mode (**[Off]** or **On**) when the analog component signal or analog RGB signal format is input. When On is selected, the signal to be displayed is synchronized with the sync signal input to the SYNC connector (External Sync). When Off is selected, the signal to be displayed is synchronized with the sync signal included in the signals being monitored (Internal Sync). **Notes** • When Component is set to YPbPr or RGB in Format of the Input Configuration menu, you can set the external sync. • The external sync is not set in the following cases: – When the internal signal is displayed – When the captured frame is displayed
	Comb	Sets whether or not to use the comb filter (**Off** or **[On]**). When Off is selected, the trap · band-pass filter (Trap/BPF) is selected. You can select the type of comb filter in NTSC Comb Filter menu (page 54) of the Display Setting menu. **Notes** • When Composite is set to Auto, NTSC, PAL or PAL-M in Format of the Input Configuration menu, you can set the comb filter. • The comb filter is not set in the following cases: – When the internal signal is displayed – When the captured frame is displayed
	Aperture	Sets whether or not to function the aperture modification (**Off** or **On**). **[Off]** (when the signal is displayed in Aspect Correction mode of the native display), **[On]** (when the signal is displayed in mode other than Aspect Correction of the native display) **Note** When Format of the Input Configuration menu is set to DVI Computer or the HDMI computer signal is input, the aperture modification does not function.
	Mono	Sets whether or not to display in monochrome mode (**[Off]** or **On**).
	Blue Only	Sets whether or not to display only the blue signal as a monochrome picture after cutting the red and green signals (**[Off]** or **On**).
	R Off	Sets whether or not to cut the red signal (**[Off]** or **On**).
	G Off	Sets whether or not to cut the green signal (**[Off]** or **On**).
	B Off	Sets whether or not to cut the blue signal (**[Off]** or **On**).
	Chroma Up	Sets whether or not to increase the chroma value by 12 dB (**[Off]** or **On**). **Note** The chroma value is not increased in the following cases: • When the signal to be displayed is RGB • When the composite signal is automatically displayed in monochrome depending on the color discrimination of the input adaptor • When the internal signal is displayed
	Black Frame Insertion	Sets whether or not to display in black frame insertion mode (**[Off]** or **On**). **Note** The black frame is not inserted in the following cases: • When Interlace is set to On • When the 24P or 24PsF input signal is displayed • When Format of the Input Configuration menu is set to DVI Computer • When the HDMI computer signal is input *For details of this menu, see "Selecting Display Mode" on page 77.*
	Interlace	Sets whether or not to display in interlace mode (**[Off]** or **On**). **Notes** • Set Native Scan to On for the interlace display. • The picture is not displayed in interlace mode in the following cases: – When Side by Side is set to On – When Pixel Zoom is set to on *For details of this menu, see "Selecting Display Mode" on page 77.*

Menu		Function and operation ([ ]: factory setting)
Function Switch	Marker	Sets whether or not to display all markers (**[Off]** or **On**). **Note** The marker is not displayed in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Computer • When the HDMI computer signal is input • When H Delay/V Delay is set to On • When Side by Side is set to On • When Pixel Zoom is set to on
	Aspect Marker	Sets whether or not to display the aspect marker (**[Off]** or **On**). **Note** The aspect marker is not displayed in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Computer • When the HDMI computer signal is input • When H Delay/V Delay is set to On • When Side by Side is set to On • When Pixel Zoom is set to on
	Area Marker 1	Sets whether or not to display the area marker 1 (**[Off]** or **On**). **Note** The area marker 1 is not displayed in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Computer • When the HDMI computer signal is input • When H Delay/V Delay is set to On • When Side by Side is set to On • When Pixel Zoom is set to on
	Area Marker 2	Sets whether or not to display the area marker 2 (**[Off]** or **On**). **Note** The area marker 2 is not displayed in the following cases: • When the input signal has no sync signal • When the internal signal is displayed • When Format of the Input Configuration menu is set to DVI Computer • When the HDMI computer signal is input • When H Delay/V Delay is set to On • When Side by Side is set to On • When Pixel Zoom is set to on
	Side by Side	Sets whether or not to display in the side by side display (**[Off]** or **On**). **Note** The side by side display is not set in the following cases: • When the internal signal is displayed • When Pixel Zoom is set to on
	Black Detail Mode	Sets whether or not to display the signal in black detail mode (**[Off]** or **On**). **Note** The black detail mode is not set in the following cases: • When Interlace is set to On • When Black Frame Insertion is set to On • When H Delay/V Delay is set to On

System Configuration Menu

Overview

This menu is used to set the system such as the network, parallel remote control function, etc.
When System Configuration is selected, the following menu is displayed.



Menu Function and Operation

Menu			Function and operation ([ ]: factory setting)
Network			Sets the remote control function of the network.
	Monitor ID		Enter a monitor ID number. Set to **01** to **99**. **[01]**
	Group ID		Enter a group ID number. Set to **01** to **99**. **[01]**
	Network Setting		Sets the IP address, subnet mask and default gateway. For the setting value, consult the network administrator.
		IP Address	Sets the IP address. **[192.168.000.001]** **Note** When the NETWORK switch is set to PEER TO PEER, the IP address is set to “192.168.0.1” regardless of the display. When the NETWORK switch is set to LAN, the IP address is set to the displayed one.
		Subnet Mask	Sets the subnet mask. **[255.255.255.000]** **Note** When the NETWORK switch is set to PEER TO PEER, the subnet mask is set to “255.255.255.000” regardless of the display. When the NETWORK switch is set to LAN, the subnet mask is set to the displayed one.
		Default Gateway	Sets whether or not to set the default gateway (**[Off]** or **On**).
		Address	Sets the address of the default gateway. **[---.---.---.---** (no setting)**]**
		Cancel	Cancels the changed or confirmed setting.
		Confirm	Saves the changed or confirmed setting.
	SNMP Setting		Sets SNMP. For the setting value, consult the network administrator.
		Contact	Sets the information of the administrator. When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).

Menu				Function and operation ([ ]: factory setting)
Network				
		Name		Sets the information for the administration (device ID). When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).
		Location		Sets the location information. When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).
		Trap		Sets the address to send the information.
			Mode	Sets the settings to send information manually or automatically (**[Manual]** or **Auto**).
			Trap Address Setting	Sets the IP address to send the information. **[000.000.000.000]** When Mode is set to Manual, you can select this item. When the item is selected, you can set the IP address of **Trap1** to **Trap4**. **Cancel:** Cancels the changed or confirmed setting. **Confirm:** Saves the changed or confirmed setting.
			Trap Address Status	Displays the IP address to send the information. When Mode is set to Auto, you can select this item. When the item is selected, the IP address of **Trap1** to **Trap4** is displayed.
			Reset Mode/Address	Resets the settings to send information manually or automatically and the IP address to the factory setting. When the item is selected, the following message appears. **Are you sure?** **OK:** To reset the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
			Authentication	Sets whether or not to issue the authentication (**[Disable]** or **Enable**).
		Community		Sets the community name. When the item is selected, you can enter the community name (up to 20 characters). **public:** Initially, public is entered automatically. Enter any character after it. **New Name:** Enter a community name.
	Protocol Setting			Sets the required items for communications such as the port number. For the setting value, consult the network administrator.
		SDCP/SDAP Community		Sets the SDCP/SDAP community name. When the item is selected, you can enter the community name (four characters). **SONY:** SONY is entered as a community name. **New Name:** Enter a new name.
		SDCP Port No		Sets the SDCP port number. Set to **53434** to **53534**. **[53484]**
		SDAP Port No		Sets the SDAP port number. Set to **53812** to **53912**. **[53862]**
		SDAP Broadcast		Sets whether or not to issue the SDAP (**Disable** or **[Enable]**).
		SDAP Broadcast Period		Sets the period (seconds) to issue the SDAP. Set to **05** to **30**. **[15]**
		Acceptable IP Address		Sets the IP address to connect. When the item is selected, you can set **IP1** to **IP4**. **Cancel:** Cancels the changed or confirmed setting. **Confirm:** Saves the changed or confirmed setting.
		Reset Protocol Setting		Resets the protocol setting. When the item is selected, the following message appears. **Are you sure?** **OK:** To reset data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
Parallel Remote				Sets the parallel remote function.
	Parallel Remote			Selects whether or not to use the parallel remote functions. (**[Off]** or **On**)

Menu		Function and operation ([ ]: factory setting)
Parallel Remote	1 Pin to 8 Pin	Assigns the function to each pin of the PARALLEL REMOTE connector when Parallel Remote is set to On. 1 Pin: **[CH01]** 2 Pin: **[CH02]** 3 Pin: **[External Sync]** 4 Pin: **[Mono]** 5 Pin: **[Marker]** 6 Pin: **[unused]** 7 Pin: **[unused]** 8 Pin: **[Tally]** You can change the assignment to the following functions for pins 1 to 8. Parallel Remote (1/4) **CH01 to 30:** Selects a channel number. Enter the desired channel number with the numeric buttons. **----:** Unused **Under Scan:** The under scan function. When it is set to off, the scan mode is set to Normal Scan. **Over Scan:** The over scan function. When it is set to off, the scan mode is set to Normal Scan. **Native Scan:** The native scan function **16:9:** The 16:9 aspect ratio function**.** When it is set to off, the aspect ratio is set to 4:3. The aspect ratio may be fixed to 16:9 due to the signal format. For details, see “Available Signal Formats” on page 93. **H Delay:** The horizontal sync display function **V Delay:** The vertical sync display function **External Sync:** The synchronization function to external sync signals **Comb:** The comb filter function. When it is set to off, the trap · band-pass filter (Trap/BPF) is selected. You can select the type of comb filter in NTSC Comb Filter menu (page 54) of the Display Setting menu. Parallel Remote (2/4) **Aperture:** The aperture modification function **Mono:** The monochrome display function **Blue Only:** The function by which red and green signals are cut and only the blue signal is displayed as a monochrome picture **R Off:** The cutting function of red signals **G Off:** The cutting function of green signals **B Off:** The cutting function of blue signals **Chroma Up:** 12 dB up function of the chroma setting value **Black Frame Insertion:** The display function in black frame insertion mode **Interlace:** The display function in interlace mode **Tally:** The function to turn on the tally lamp Parallel Remote (3/4) **Marker:** The display function of all markers set in the Marker Setting menu **Aspect Marker:** The display function of the aspect marker set in the Marker Setting menu **Area Marker 1:** The display function of the area marker 1 set in the Marker Setting menu **Area Marker 2:** The display function of the area marker 2 set in the Marker Setting menu **Side by Side:** The side by side function **Power Off:** The monitor power function Parallel Remote (4/4) **Black Detail Mode:** The display function in black detail mode *For the pin assignment, see “PARALLEL REMOTE connector” in Location and Function of Parts on page 16.*
Power		Sets the status of the monitor when the main power is turned on or the power is turned on by remote operation.
	Standby Mode	Sets the status when the MAIN POWER switch is turned on. **[Off]:** Operation mode **On:** Standby mode

Menu			Function and operation ([ ]: factory setting)
Power	Power On Status		Sets the input channel when the power is turned on. **[Last]**: Sets to the channel that was selected at the time the power was last turned off. **CH:** Sets to the channel number specified in Default CH.
	Default CH		Selects the channel (**01** to **30**) when the Power On Status is set to CH. **[01]**
On Screen Set			Sets the items for the screen display.
	Input Information		Sets the display of the input information.
		Format	Sets the display mode of the signal system. **[Auto]:** Disappears after being displayed for a while. **On:** Always displayed. **Off:** Not displayed.
		Position	Sets the display position for the signal system. You can select from **Top Left** (top left), **Top Center** (top center), **Top Right** (top right), **[Bottom Left]** (bottom left), **Bottom Center** (bottom center) or **Bottom Right** (bottom right).
		CH No	Sets the display mode of the channel number. **[Auto]:** Disappears after being displayed for a while. **On:** Always displayed. **Off:** Not displayed.
		Position	Sets the display position for the channel number. You can select from **Top Left** (top left), **Top Center** (top center), **[Top Right]** (top right), **Bottom Left** (bottom left), **Bottom Center** (bottom center) or **Bottom Right** (bottom right).
		CH Name	Sets the display mode of the channel name. **[Auto]:** Disappears after being displayed for a while. **On:** Always displayed. **Off:** Not displayed.
		Position	Sets the display position for the channel name. You can select from **[Top Left]** (top left), **Top Center** (top center), **Top Right** (top right), **Bottom Left** (bottom left), **Bottom Center** (bottom center) or **Bottom Right** (bottom right).
		Scan Mode	Sets the display mode of the scan mode. **[Auto]:** Disappears after being displayed for a while. **On:** Always displayed. **Off:** Not displayed.
		Position	Sets the display position for the scan mode. You can select from **Top Left** (top left), **Top Center** (top center), **Top Right** (top right), **Bottom Left** (bottom left), **Bottom Center** (bottom center) or **[Bottom Right]** (bottom right).
	Closed Caption		Sets the items for the closed caption display. When the BKM-244CC is installed, you can select the item. The setting is effective for the input signal of the BKM-244CC.
		Closed Caption	Sets whether or not to display closed caption signal (**[Off]** or **On**).
		Type	Sets the closed caption type. **[708]:** Select to display the closed caption signal of the EIA/CEA-708 standards. **608 (708):** Select to display the closed caption signal of the EIA/CEA-608 standards transmitted by EIA/CEA-708 standards. **608 (ANC):** Select to display the closed caption signal of the EIA/CEA-608 standards transmitted as the ancillary data **608 (VBI):** Select to display the closed caption signal of the EIA/CEA-608 standards transmitted by using the line 21.
		Service 708	Sets Service when Type is set to 708. You can select from **Service1** to **Service6**. **[Service1]**
		Service 608	Sets Service when Type is set to 608 (VBI), 608 (ANC) or 608 (708). You can select from **CC1** to **CC4** or **Text1** to **Text4**. **[CC1]**
		OSD Level	Sets the luminance of the letter. You can select from **[100IRE]** (bright), **50IRE** or **30IRE** (dark).
Password			Sets the password for the menu. Enter a four-digit number for the password. **[9999]**

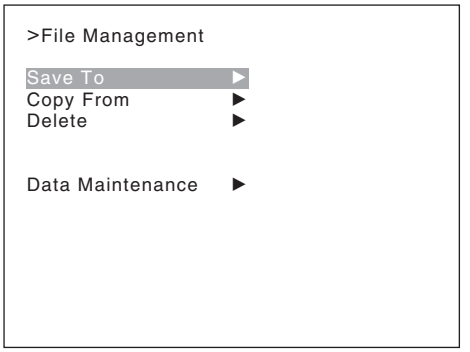
Menu				Function and operation ([ ]: factory setting)
Password	Change Password			Changes the password. **Enter New Password:** Enter a new password with the numeric buttons and press the ENTER (Ent) button. **Re-Enter Password:** Enter the new password again and press the ENTER (Ent) button. The password is registered. To change it, press the MENU button.
	Apply Password			Sets whether or not to apply the password to each menu (**Yes** or **[No]**).
		Adjustment		**Yes:** Apply the password. **[No]:** Not apply the password.
		Input Configuration		**Yes:** Apply the password. **[No]:** Not apply the password.
		Display Setting		**Yes:** Apply the password. **[No]:** Not apply the password.
		Display Function		**Yes:** Apply the password. **[No]:** Not apply the password.
		System Configuration		**Yes:** Apply the password. **[No]:** Not apply the password.
			Individual Item	Sets whether or not to apply the password to the System Configuration menu.
			Network	**Yes:** Apply the password. **[No]:** Not apply the password.
			Parallel Remote	**Yes:** Apply the password. **[No]:** Not apply the password.
			Power	**Yes:** Apply the password. **[No]:** Not apply the password.
			On Screen Set	**Yes:** Apply the password. **[No]:** Not apply the password.
			Date/Time	**Yes:** Apply the password. **[No]:** Not apply the password.
			Scan Mode Skip	**Yes:** Apply the password. **[No]:** Not apply the password.
		File Management		**Yes:** Apply the password. **[No]:** Not apply the password.
		Controller		**Yes:** Apply the password. **[No]:** Not apply the password.
		Key Protect		**Yes:** Apply the password. **[No]:** Not apply the password.
Date/Time				When the item is selected, you can set or change the date and time.
	Year			Sets the year.
	Month			Sets the month.
	Day			Sets the day.
	Hour			Sets the hour (in 24-hour display).
	Minute			Sets the minute.
	Cancel			Cancels the setting.
	Confirm			Executes the setting. Second is set to 0.
Scan Mode Skip				Sets the scan mode to be skipped when the SCAN button is pressed in the single mode connection. **[None]:** No scan is skipped. **Under Scan:** The under scan is skipped. **Over Scan:** The over scan is skipped.

Menu		Function and operation ([ ]: factory setting)
Monitor Upgrade		Upgrades the monitor. When the item is selected, the screen for inputting the password is displayed. After the 4-digit password is entered, the current versions of Software Version, Kernel Version, FPGA1 Version, FPGA2 Version, and FPGA Core Version are displayed. *For the password, see Password (page 65) of the System Configuration menu.* *For details on upgrading the monitor, see "Upgrading the Monitor and Controller" on page 85.*
	Software Upgrade	Upgrades the software for the monitor.
	Kernel Upgrade	Upgrades the kernel of the monitor.
	FPGA Upgrade	Upgrades the FPGA data of the monitor.
Maintenance		The menu for the Sony service representative is displayed.

File Management Menu

Overview

The system data is saved, copied and deleted.
When File Management is selected, the following menu is displayed.



Menu Function and Operation

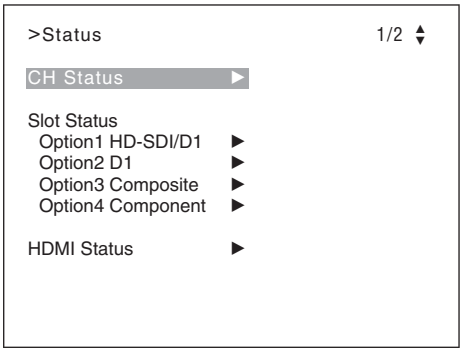
Menu	Function and operation ([ ]: factory setting)
Save To	Saves the data in the “Memory Stick”. **Note** Use the “Memory Stick” after formatting.
Memory Stick	Saves the data in the “Memory Stick”. When the item is selected, you can select the file to save data, or create a new file name. **New Name:** Enter a new name of the new file (1 to 20 characters). **Existed file name:** Select the file to save data. The following message appears. **Overwrite this file?** **OK:** To overwrite the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the ENTER (Ent) button. **Note** When a new name is entered, the “.” must not be used as the first character.
Copy From	Copies the data.
Other Monitor	Selects the data of other monitor.
Monitor ID	Enter the ID number of the source monitor. When the NETWORK switch is set to PEER TO PEER, this is not selectable. When the ID number is entered, you can select the data to be copied. **All:** Copies all data. **Picture Preset:** Copies the picture preset data. **Color Temp:** Copies the color temperature data. **CH Memory:** Copies the channel memory data. **Matrix/Gamma:** Copies the user data of Matrix/Gamma (transmission matrix and transmission gamma). **Marker:** Copies the preset data of the marker. **System:** Copies the system data.

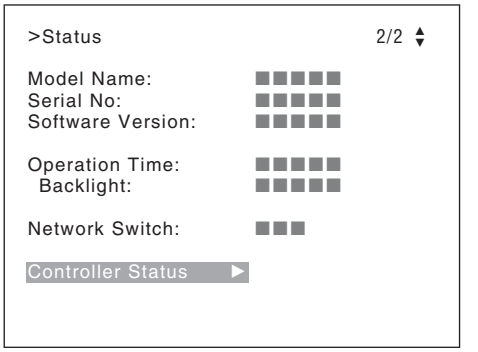
Menu		Function and operation ([ ]: factory setting)
Copy From	Memory Stick	Selects the data in the source “Memory Stick”. When the item is selected, the file names in the “Memory Stick” are displayed. When the item is selected, you can select the data to be copied. **All:** Copies all data. **Picture Preset:** Copies the picture preset data. **Color Temp:** Copies the color temperature data. **CH Memory:** Copies the channel memory data. **Matrix/Gamma:** Copies the user data of Matrix/Gamma (transmission matrix and transmission gamma). **Marker:** Copies the preset data of the marker. **System:** Copies the system data.
Delete		Deletes the file in the “Memory Stick”.
	Memory Stick	Deletes the file in the “Memory Stick”. When the item is selected, the file names in the “Memory Stick” are displayed. When the file is selected, the following message appears. **Delete this file?** **OK:** To delete the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
Data Maintenance		Does maintenance the system data.
	Back Up System Data	Writes the data to the “Memory Stick” as the backup data. The “**In progress ■**” is displayed and “■” flashes during data writing. (It may take some time to write the data.)
	Restore System Data	Reads the data from the “Memory Stick”. When the item is selected, the following message appears. **All data will be restored** **and monitor will restart** **Are you sure?** **OK:** To continue, press the ENTER (Ent) button. Reads the data from the “Memory Stick” and automatically restarts the monitor. **Cancel:** To cancel, press the MENU button. Returns to the Data Maintenance menu.

Status Menu

Overview

This menu is used to view general data about the monitor status, current channel, etc.
When Status is selected, the following menus are displayed.





Menu Function and Operation

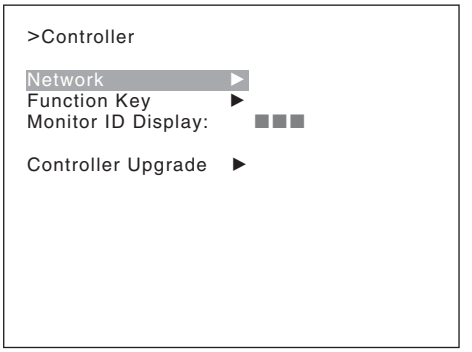
Menu	Function and operation ([ ]: factory setting)
CH Status	Displays the information on the used channels. The information of the internal signal assigned to the channel number is displayed on the channels 91 to 97. **CH:** Channel number **Op:** Option slot number **In:** Input connector number **Format:** Input signal format **Name:** Channel name *For details on the assigned signal, see "Channel numbers 91 to 97 assignment" on page 34.*
Slot Status **Option1 to Option4**	Displays the type of input adaptor installed in Option1 to Option4. **D1:** When BKM-220D is installed **Composite:** When BKM-227W is installed **Component:** When BKM-229X is installed **HD-SDI/D1:** When BKM-243HS or BKM-244CC is installed **Empty:** When the adaptor is not installed **Unknown:** When non-supported adaptor is installed When the item is selected, the model name and serial number of the installed input adaptor are displayed. **Model Name:** Model name **Serial No:** Serial number
HDMI Status	Displays the signal information of the HDMI signal. **Pixel Encoding:** RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2 **Color Depth:** 8bit/10bit/12bit **Matrix/Gamma:** ITU-R BT.601/ITU-R BT.709/xvYCC 601/xvYCC 709 **RGB Range:** Limit/Full **Notes** • When HDMI Auto is set to On in the Matrix/Gamma menu of the Input Configuration menu, the Matrix/Gamma status is displayed. • When HDMI Auto is set to On in the RGB Range menu of the Input Configuration menu, the RGB Range status is displayed.
Model Name	Displays the model name of the monitor.

Menu		Function and operation ([ ]: factory setting)
Serial No		Displays the serial number of the monitor.
Software Version		Displays software version of the monitor.
Operation Time		Displays operation time (hours, in total) of the monitor.
Backlight		Displays brighten time (hours, in total) of the monitor backlight.
Network Switch		Displays the NETWORK switch setting.
Controller Status		Displays information on the controller.
	Model Name	Displays the model name.
	Serial No	Displays the serial number.
	Software Version	Displays software version.
	Network Switch	Displays the NETWORK switch setting.

Controller Menu

Overview

This menu is for the network setting and assigning the function to the function button of the controller.
When Controller is selected, the following menu is displayed.



Menu Function and Operation

Menu	Function and operation ([ ]: factory setting)
Network	Sets the remote control function of the network. For the setting value, consult the network administrator.
Network Setting	Sets the IP address, subnet mask and default gateway.
IP Address	Sets the IP address. **[192.168.000.100]** **Note** When the NETWORK switch is set to PEER TO PEER, the IP address is set to "192.168.0.100" regardless of the display. When the NETWORK switch is set to LAN, the IP address is set to the displayed one.
Subnet Mask	Sets the subnet mask. **[255.255.255.000]** **Note** When the NETWORK switch is set to PEER TO PEER, the subnet mask is set to "255:255:255:000" regardless of the display. When the NETWORK switch is set to LAN, the subnet mask is set to the displayed one.
Default Gateway	Sets whether or not to set the default gateway (**[Off]** or **On**).
Address	Sets the address of the default gateway. **[---.---.---.---** (no setting)**]**
Cancel	Cancels the changed or confirmed setting.
Confirm	Saves the changed or confirmed setting.
SNMP Setting	Sets SNMP. For the setting value, consult the network administrator.
Contact	Sets the information of the administrator. When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).
Name	Sets the information for the administration (device ID). When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).

Menu				Function and operation ([ ]: factory setting)
Network		Location		Sets the location information. When the item is selected, you can enter a new name. **New Name:** Enter a new name (up to 20 characters).
		Trap		Sets the address to send the information.
			Mode	Sets the settings to send information manually or automatically (**[Manual]** or **Auto**). This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5.
			Trap Address Setting	Sets the IP address to send the information. **[000.000.000.000]** When Mode is set to Manual or the monitor is controlled with BKM-15R or BVM-A14F5, you can select this item. When the item is selected, you can set the IP address of **Trap1** to **Trap4**. When the monitor is controlled with BKM-15R or BVM-A14F5, you can set only the IP address of **Trap1** and **Trap2**. **Cancel:** Cancels the changed or confirmed setting. **Confirm:** Saves the changed or confirmed setting.
			Trap Address Status	Displays the IP address to send the information. When Mode is set to Auto, you can select this item. This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5. When the item is selected, the IP address of **Trap1** to **Trap4** is displayed.
			Reset Mode/Address	Resets the settings to send information manually or automatically and the IP address to the factory setting. This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5. When the item is selected, the following message appears. **Are you sure?** **OK:** To reset the data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
			Authentication	Sets whether or not to issue the authentication (**[Disable]** or **Enable**). This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5.
		Community		Sets the community name. This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5. When the item is selected, you can enter the community name (up to 20 characters). **public:** Initially, public is entered automatically. Enter any character after it. **New Name:** Enter a community name.
	Protocol Setting			Sets the required items for communications such as the port number. This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5. For the setting value, consult the network administrator.
		SDCP/SDAP Community		Sets the SDCP/SDAP community name. When the item is selected, you can enter the community name (four characters). **SONY:** SONY is entered as a community name. **New Name:** Enter a new name.
		SDCP Port No		Sets the SDCP port number. Set to **53434** to **53534**. **[53484]**
		SDAP Port No		Sets the SDAP port number. Set to **53812** to **53912**. **[53862]**
		SDAP Broadcast		Sets whether or not to issue the SDAP (**Disable** or **[Enable]**).
		SDAP Broadcast Period		Sets the period (seconds) to issue the SDAP. Set to **05** to **30**. **[30]**
		Reset Protocol Setting		Resets the protocol setting. When the item is selected, the following message appears. **Are you sure?** **OK:** To reset data, press the ENTER (Ent) button. **Cancel:** To cancel, press the MENU button.
Function Key				Assigns the function to the function buttons. This item cannot be selected when the monitor is controlled with BKM-15R or BVM-A14F5.

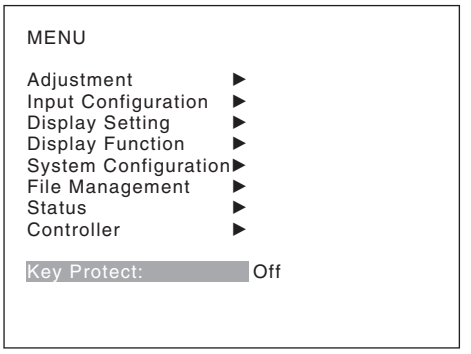
Menu		Function and operation ([ ]: factory setting)
Function Key	F1 to F16	The following functions are assigned. **Scan Mode:** Changes the scan mode of the picture. **Native Scan:** Displays the picture in native scan mode. **16:9:** Changes the aspect ratio to 16:9, and when set to Off, the aspect ratio changes to 4:3. The aspect ratio of some signals is fixed to 16:9 depending on the signal format. For details, see “Available Signal Systems” on page 92. **H Delay:** The picture moves horizontally and a horizontal sync signal appears. • Brightness of the picture increases automatically, and it makes it easy to check the sync part. • When V DELAY button is set to on in H delay mode, a pulse cross picture is displayed. **V Delay:** The picture moves vertically and a vertical sync signal appears approximately in the center of the screen. • Brightness of the picture increases automatically, and it makes it easy to check the sync part. • When H DELAY button is set to on in V delay mode, a pulse cross picture is displayed. **External Sync:** Sets whether or not to set to the external sync mode when the analog component signal or analog RGB signal is input. When the button is set to on, the signal to be displayed is synchronized with the sync signal input to the EXT SYNC connector (External Sync). When set to off, the signal to be displayed is synchronized with the sync signal included in the signals being monitored (Internal Sync). **Note** When the button is set to off (Internal Sync), a sync signal is added on the Y signal to monitor the analog component signal and on the G signal to monitor the analog RGB signal. **Comb:** The comb filter is turned on. When the button is set to off, the band-pass filter is selected. When the displayed signal is NTSC, PAL or PAL-M, this functions. You can select the kind of the comb filter in the NTSC Comb Filter menu (page 54) of the Display Setting menu. **Char Off:** The characters on the monitor screen hide during manual adjustment. **Color Temp:** You can access directly the Manual Adjust menu of the color temperature. **Capture Load:** Displays the menu to load the captured picture from the “Memory Stick”. **Aperture:** When the function is set to on, the frequency response can be modified. The degree of modification is set in the Aperture Value menu (page 54) of the Display Setting menu. For information about the aperture modification frequency for each signal system, see “Aperture Modification Frequency” on page 98. **Mono:** When the button is set to on, a monochrome picture is displayed. When the button is set to off, the monitor switches automatically between color and monochrome mode, depending on the color discrimination of the input adaptor. **Blue Only:** Red and green signals are cut, and only the blue signal is displayed as a monochrome picture. It makes it easy to adjust chroma and phase, and to check VTR noise. **R Off:** R (red) signals are cut respectively. **G Off:** G (green) signals are cut respectively. **B Off:** B (blue) signals are cut respectively. **Chroma Up:** The chroma setting increases by 12 dB. **Black Frame Insertion:** Displays in the black frame insertion mode. **Interlace:** Displays in the interlace mode. **Pixel Zoom:** The part of the picture is magnified up to 8 times. **Note** When Pixel Zoom is used, set Native Scan to On. **Marker:** When the button is set to on, all markers are displayed on the screen. The display mode of the marker is set in the Marker Setting menu (page 55) of the Display Function menu. **Note** When External Sync is set to On, the marker may not be shown in the correct position.

Menu		Function and operation ([ ]: factory setting)
Function Key		**Aspect Marker:** An aspect marker is displayed on the screen. The display mode of the aspect marker is set in Aspect Marker (page 55) of the Marker Setting menu of the Display Function menu. **Note** When External Sync is set to On, the marker may not be shown in the correct position. **Area Marker 1:** An area marker 1 is displayed on the screen. The display mode of the area marker 1 is set in Area Marker 1 (page 56) of the Marker Setting menu of the Display Function menu. **Note** When External Sync is set to On, the marker may not be shown in the correct position. **Area Marker 2:** An area marker 2 is displayed on the screen. The display mode of the area marker 2 is set in Area Marker 2 (page 57) of the Marker Setting menu of the Display Function menu. **Note** When External Sync is set to On, the marker may not be shown in the correct position. **Side by Side:** The screen is displayed in the side by side display mode. **Wipe:** The screen is displayed in the wipe display mode. (for BVM-L series) **Butterfly:** The screen is displayed in the butterfly display mode. (for BVM-L series) **Blending:** The screen is displayed in the blending display mode. (for BVM-L series) **Error Notify Clear:** Clears the notification detected in the gamut error detection. (for BVM-L series) **Degauss:** The CRT is degaussed (only for BVM-A series). **Black Detail Mode:** The signal is displayed in black detail mode.
Monitor ID Display		Sets display mode of the display window. **[On]:** Always displayed. **Auto:** Displayed during operating by the remote connection and disappears automatically after operation. **Off:** Not displayed.
Controller Upgrade		Upgrades the controller. When the item is selected, the screen for inputting the password is displayed. After the 4-digit password is entered, the current versions of Software Version and Kernel Version are displayed. *For the password, see Password (page 65) of the System Configuration menu.* *For details on upgrading the controller, see "Upgrading the Monitor and Controller" on page 85.*
	Software Upgrade	Upgrades the software for the controller.
	Kernel Upgrade	Upgrades the kernel of the controller.

Key Protect Menu

Overview

This menu is used to lock the data so that the setting is not changed by an unauthorized user.



Menu Function and Operation

Menu	Function and operation ([ ]: factory setting)
Key Protect	Sets the key protection. **On:** The button on the controller (except the menu operation buttons and monitor selection buttons) and the parallel remote do not function and other settings are not changeable. **[Off]:** Release the lock.

Chapter 4 Operations

Selecting Display Mode

This monitor applies high-contrast to the picture and reproduces accurate color by displaying the interlace signal in progressive mode by the I/P conversion or the PsF·progressive signal in progressive mode without the I/P conversion.
You can select following mode according to the input signal or the object to evaluate the picture.

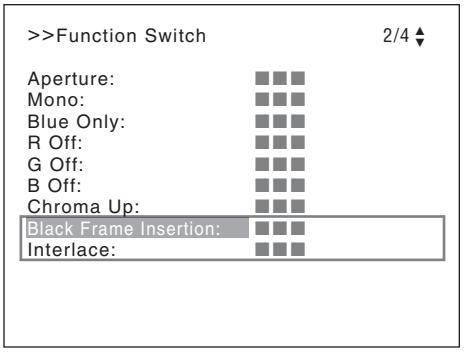
- **Black frame insertion display mode:** A black frame is inserted between the picture frames. It is convenient to confirm the picture with multi-action scenes or roll telop as the motion blur caused by the holding-type display of the LCD is decreased.
- **Interlace display mode:** The picture is displayed in interlace mode without I/P conversion processing. The picture near the original quality of the input signal is monitored.

Notes

- The luminance is reduced due to the principle of operation in the black frame insertion mode and the interlace display mode. However, on this monitor the normal luminance is set by setting up the value of the backlight luminance. For this reason, the black level is set higher than the normal setting level and the range of the contrast adjustment (backlight adjustment) is different from the normal level, and the luminance may be reduced according to the setting of the contrast.
- You cannot use both the black frame insertion display mode and interlace display mode. When the interlace display is set to on, the black frame insertion display is not set to on.
- The black frame is not inserted in the following cases:
  - When Interlace is set to On
  - When the 24P or 24PsF input signal is displayed
  - When Format of the Input Configuration menu is set to DVI Computer
  - When the HDMI computer signal is input
- The picture is not displayed in interlace mode in the following cases:
  - When Side by Side is set to On
  - When Pixel Zoom is set to on

1 Set Native Scan (page 59) to On in the Display Function menu for interlace display.

2 Set Interlace and Black Frame Insertion in the Function Switch menu (page 59) of the Display Function menu.



Setting Interlace and Black Frame Insertion

Display mode	Interlace	Black Frame Insertion
Progressive (factory setting)	Off	Off
Black frame insertion display	Off	On
Interlace display	On	Off

For the input signal to display in black insertion mode and interlace mode, see "Picture·Frame Display" on page 102.

Setting the Display of Native Scan Mode

About the native scan mode

You can set the picture display type for the native scan mode according to the input signal.
You can select ×1 or ×2, which differ in picture display size, to map the pixels of the signal to the panel in one-to-one mode, or Aspect Correction. An SD signal of non-square pixels (the number of H pixels of the signal system is 720 or 1440) or a 640 × 480 SD signal of DVI video/HDMI video is displayed correctly by scaling processing of doubling for the V direction and correct aspect ratio for the H direction, and the picture is also optimized and displayed by modifying the aperture coefficient value, filter coefficient value, etc. in Aspect Correction mode.
For details, see "Picture Display Size" on page 99.
Set the native scan mode in the Native Scan Mode menu (page 54) of the Display Setting menu.

Note

The native scan is not selectable in the following cases:
- When the input signal has no sync signal
- When Side by Side is set to On
- When Pixel Zoom is set to on
- When Format of the Input Configuration menu is set to DVI Computer (The native scan is displayed regardless of the setting.)
- When the signal system is the SD signal of 720 × 576 or 1440 × 576, Native Scan Mode is set to Aspect Correction and the internal signal of the aspect ratio 16:9 is displayed (Native Scan is set to Off and the normal scan is displayed regardless of the setting.)
- When the HDMI computer signal is input (The native scan is displayed regardless of the setting.)

Selecting the Native Scan/Scan Mode

You can select scan mode from a native scan that maps the pixel of the signal to the panel in one to one mode, under scan (–3%), normal scan (0%) and over scan (mask of 5% over scan portion in the normal scan picture).
You can set scan mode with the NATIVE SCAN button or SCAN button of the controller, or in the Function Switch menu of the Display Function menu.

Setting with the NATIVE SCAN button or SCAN button of the controller

To set to the native scan mode

Set the NATIVE SCAN button to on. (The LED on the button lights.)

To select the scan mode

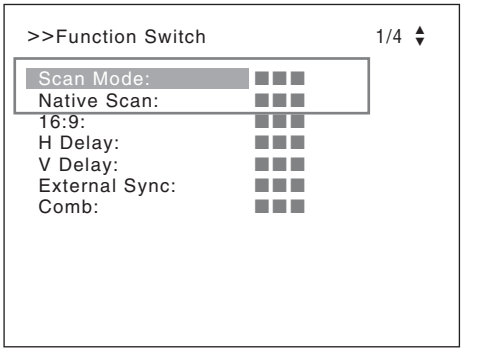
1 Set the NATIVE SCAN button to off. (The LED on the button is turned off.)

2 Press the SCAN button to select the scan mode.

Scan mode is changed to normal, under and over scan mode by each press of the button.

Setting in the menu

Set Scan Mode or Native Scan in the Function Switch menu of the Display Function menu.



To set to the native scan mode

Set Native Scan to On.

To select the scan mode

1 Set Native Scan to Off.

2 Select Scan Mode, then select scan mode from the following.

Normal Scan: Normal mode

Under Scan: Under mode
Over Scan: Over mode

For details on the Function Switch menu, see "Function Switch" (page 59) in the Display Function menu.

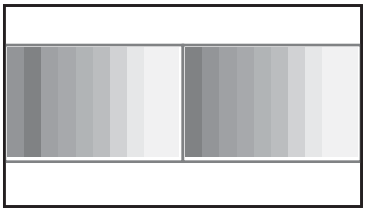
Note

The scan mode is not selectable in the following cases:
- When Native Scan is set to On
- When the internal signal is displayed
- When Side by Side is set to On

Displaying Two Signals on One Screen (Picture&Picture)

Two input signals are output on the monitor. Side by Side mode is useful for adjusting the color or comparing two pictures.
You can input the file loaded in the Capture menu (page 58) of the Display Function menu.

Side by Side (side by side)



Notes

- The input signals from INPUT 1 and INPUT 2 of one input adaptor are not displayed in the multi display. Two or more input adaptors are required to use the input signals from the input adaptor as signal A and signal B.
- You cannot select the same channel number as channels for signal A and signal B. And set a different channel number of the different input adaptor for signal A and signal B.
- When signal A and signal B are not the same signal format and signal system, the pictures may not be displayed correctly.
- The input of signal A is not changed in the multi display.
- The internal signal is not displayed in the multi display.
- The captured picture data is not used to display as signal A and signal B at the same time.
- The signals are not displayed in the multi display mode when Pixel Zoom is set to on.

Procedure

1 Select the channel number and set the input signal to display as signal A.

2 Select the Side by Side mode with the function button* of the controller or in the Function Switch menu of the Display Function menu and set it to On.

For details on the Function Switch menu, see the "Function Switch" (page 59) of the Display Function menu.

* The function of Picture&Picture is assigned to each function button of the controller in the Function Key menu (page 73) of the Controller menu.

3 Select the channel number and set the input signal to display as signal B.

The channel for signal B is set to CH01 at the factory setting.

To display the captured picture data file

You can use a captured picture other than the picture selected by designating the channel number as signal A and signal B.
Instead of setting the channel number in step**1** or step**3**, press the Capture Load button* or select Load in the Capture menu.

For details on the Capture menu, see the "Capture" (page 58) of the Display Function menu.

* Capture Load is assigned to the controller in the Function Key menu (page 73) of the Controller menu.

To end the multi display

Set Side by Side to Off in Function Switch menu (page 59) of the Display Function menu, or set the function button of the controller to off.

Magnifying the Picture (Pixel Zoom)

As part of the picture is magnified up to 8 times (up to 4 times when the display magnification of the native scan is ×2) without scaling processing, this is convenient for confirming a minute of the signal.
This functions in native scan mode.

Note

The Pixel Zoom is not set to on in the following cases:
- When the menu is displayed
- When Side by Side is set to On
- When the internal signal is displayed
- When the input signal has no sync signal

1 Set Native Scan to On by pressing the NATIVE SCAN button of the controller or in the Function Switch menu of the Display Function menu.

For details on Native Scan, see "Function Switch" (page 59) of the Display Function menu.

2 Display the picture and set Pixel Zoom to on by pressing the Pixel Zoom button* of the controller.

The cursor is displayed.

Note

When Native Scan Mode is set to Aspect Correction and Pixel Zoom is set to on for SD signal input, Native Scan Mode is set to ×2.

To cancel the cursor display and return to the previous screen

Press the MENU button of the controller.

* Pixel Zoom is assigned to the function button of the controller in the Function Key menu (page 73) of the Controller menu.

3 Select the cursor size with the UP or DOWN button of the controller.

You can select the cursor size from 1 to 8 (from 1 to 4 when the display magnification of the native scan is ×2 (page 54)).
The larger the number, the smaller the cursor.

4 Adjust the position of the cursor.

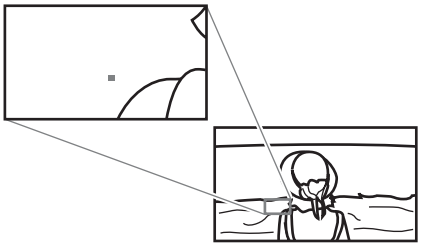
To move the leftward or rightward: Turn the PHASE knob.
To move the upward or downward: Turn the CHROMA knob.

5 Press the ENTER (Ent) button.

Part inside the cursor is magnified.
You can move the position of the magnified picture with the PHASE knob or CHROMA knob. You can change the magnification ratio with the UP or DOWN button.
You can also change the boundary line color.

For details on changing the boundary line color, see "Pixel Zoom Setting" (page 58) of the Display Function menu.

Press the MENU button of the controller to return to the cursor display.



To end the pixel zoom operation

When the cursor is displayed or the picture is magnified, press the Pixel Zoom button of the controller.

Displaying the Picture in Black Detail Mode

Black detail mode display function

You can reduce to dull black color by backlight leaking and precisely assess any parts with low color gradation.
You can decrease the black level up to 40% of the normal display (100 cd/m^2 at 100% signal). The parts with high color gradation (higher than 75 IRE) are clipped by the dynamic range of the circuit, but a zebra pattern (selectable) is displayed in the clipped portions.

For details on the zebra pattern display for the clipped portion, see "Zebra Pattern" (page 58) in the Black Detail Setting menu of the Display Function menu.

Notes

- The setting is in effect when Gamma (transmission gamma) of the Matrix/Gamma menu is set to 2.2.
- The contrast is not set in black detail mode.
- The signal is not displayed in black detail mode in the following cases:
  - When Interlace is set to On
  - When Black Frame Insertion is set to On
  - When H Delay/V Delay is set to On

For the Matrix/Gamma setting, see "Matrix/Gamma" (page 50) of the Input Configuration menu.

To display the signal in black detail mode

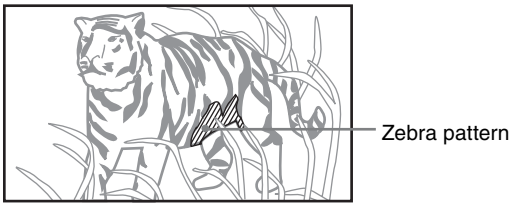
Press the Black Detail Mode button* of the controller or set Black Detail Mode (page 61) to On in the Function Switch menu of the Display Function menu.
The OVER RANGE lamp of the front panel is lit in black detail mode.

* Black Detail Mode is assigned to the controller in the Function Key menu (page 73) of the Controller menu.

Note

Use the controller with software version 1.3 or higher to assign Black Detail Mode to the function button of the controller.

Zebra pattern display of the clipped portion



To end the black detail mode

Set the Black Detail Mode button of the controller to off, or set the Black Detail Mode to Off in the Function Switch menu of the Display Function menu.

Capturing the Picture of the HD Signal (HD Frame Capture)

The frame picture of the HD-SDI input signal is captured and saved as a picture file in the “Memory Stick”. This is used to confirm the color tone and picture angle of the current scene and recorded scene, or as the reference picture to adjust the monitor.
To save the captured frame, we recommend using “Memory Stick PRO (High-Speed)” or “Memory Stick PRO Duo (High-Speed)”.

Notes

- The file is saved in TIFF. The file size is a maximum of 13 MB.
- The picture file is captured or loaded without deterioration.
- The saved file may not be opened due to the PC application used.
- The HD Frame Capture function is effective only for the HD-SDI signal.
- The interlace input signal is captured in each frame (first field (F=0) and second field (F=1)).
- The frame is not captured in the following cases:
  - When Side by Side is set to On
  - When Pixel Zoom is set to on
  - When the internal signal is displayed
  - When the input signal has no sync signal
  - When the captured frame is displayed
- The HD Frame Capture function is not available on BKM-15R and BVM-A14F5.

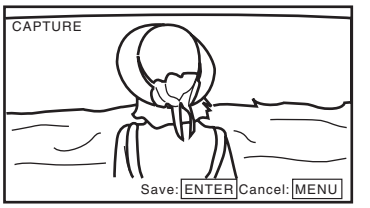
To capture

1 Insert the “Memory Stick” into the Memory Stick insertion slot of the controller.

For details on the “Memory Stick”, see “Inserting/Ejecting the “Memory Stick”” on page 121.

2 Display the picture and press the CAPTURE button of the controller at the point on the picture to be captured.

The captured still picture appears on the display.



To hide the characters on the monitor, set the CHAR OFF button to on. As the characters are hidden, it becomes easy to confirm the still picture. To display the characters, set the CHAR OFF button to off.

3 Press the ENTER (Ent) button.

The display of the captured still picture is cleared and saving in the "Memory Stick" of the captured frame starts.
The "In progress ■" is displayed and "■" flashes during data saving. (It may take some time to write the data.)
The file of the captured frame is automatically named and the file name is displayed on the screen during file saving.

Note

The monitor is not operated until the saving is completed.

To load the captured frame

Press the Capture Load button* of the controller or select Load in the Capture menu (page 58) of the Display Function menu, and then the file name.
To cancel the captured frame display, select any one of channel numbers 1 to 30.

* Capture Load is assigned to the function button of the controller in the Function Key menu (page 73) of the Controller menu.

Displaying the Area Marker or Aspect Marker

The monitor is equipped with two area markers and center marker as the safe area marker and aspect marker for confirming the picture angle.

1 Set the marker to display to On in the Marker Setting menu (page 55) of the Display Function menu.

2 Input the signal.

3 Press the function button of the controller.

When the MARKER button is set to on
All the markers that are set to On in the Marker Setting menu of the Display Function menu are displayed.
The MARKER button lights.

To display the aspect marker, area marker 1 or area marker 2
Set the button of the marker that you wish to display (ASPECT MARKER, AREA MARKER 1 or AREA MARKER 2) to on.
The MARKER button and the pressed button light.

To cancel the marker display
Set the MARKER button to off.

Copying the Setting or Adjustment Value to Another Monitor

You can save the setting or adjustment value in the "Memory Stick" and copy it to another monitor.

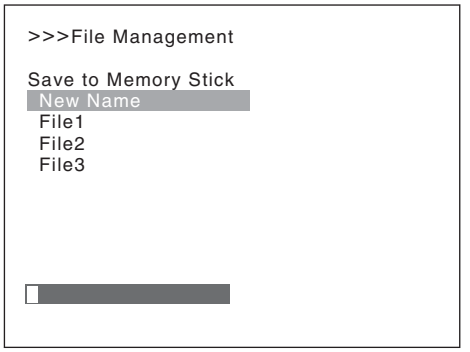
1 Insert the "Memory Stick" into the Memory Stick insertion slot of the controller.

For details on the "Memory Stick", see "Inserting/Ejecting the "Memory Stick"" on page 121.

2 Select Memory Stick in the Save To menu (page 68) of the File Management menu, and then select New Name or the existing file name.

When you select New Name, the display to create a new name appears.

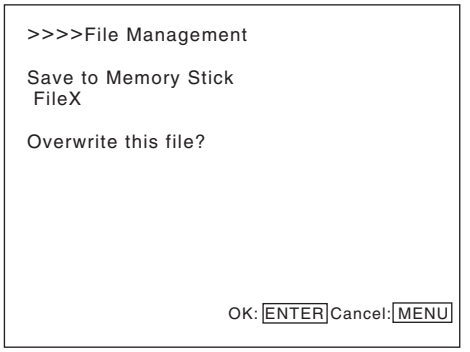
Display example



Enter a new name (1 to 20 characters).

When the existing file name is selected, the display to confirm a file name appears.

Display example



3 Press the ENTER (Ent) button.

The data is saved in the "Memory Stick".

Notes

- Data saving, copying and deleting using the "Memory Stick" is not available on BKM-15R or BVM-A14F5.
- Data copying from the BVM-L series or BVM-A series monitor is not available.

Assigning the Function on the Function Button

You can assign a function other than the factory preset on the function button of the controller.

1 Select the Function Key menu in the Controller menu.

2 Select F1 to F16 button, and then the function assigned on each button.

The following functions are assigned.
Scan Mode
Native Scan
16 : 9
H Delay
V Delay
External Sync
Comb
Char Off
Color Temp
Capture Load
Aperture
Mono
Blue Only
R Off
G Off
B Off
Chroma Up
Black Frame Insertion
Interlace
Pixel Zoom
Marker
Aspect Marker
Area Marker 1
Area Marker 2
Side by Side
Wipe
Butterfly
Blending
Error Notify Clear
Degauss
Black Detail Mode

For details on the assigned function, see "Function Key" (page 73) in the Controller menu.

Upgrading the Monitor and Controller

You can upgrade the monitor and the controller with the data saved in a "Memory Stick".
You can upgrade the following data:

Monitor: Software program
Kernel
FPGA data
Controller: Software program
Kernel

Notes

- Upgrading of the software for the controller is available for version 1.11 or later of the software for the controller, and upgrading of the controller kernel is available for version 1.2 or later.
- Use a "Memory Stick PRO" for upgrading.
  If a "Memory Stick" other than "Memory Stick PRO" is used, the upgrading may not be executed correctly.
- To initialize the "Memory Stick PRO", use a machine and application corresponding to "Memory Stick PRO".
  If Windows Explorer is used for initialization, the upgrading may not be executed correctly.

To get the upgrade data

Contact your Sony representative.

Saving the upgrade data in a "Memory Stick PRO"

Save the upgrade data (MSSONY folder) in a "Memory Stick PRO".
Save the whole MSSONY folder directly in the root directory of the Memory Stick drive.

To confirm saving the data correctly

Double-click on the file including checksum.bat in the file name.

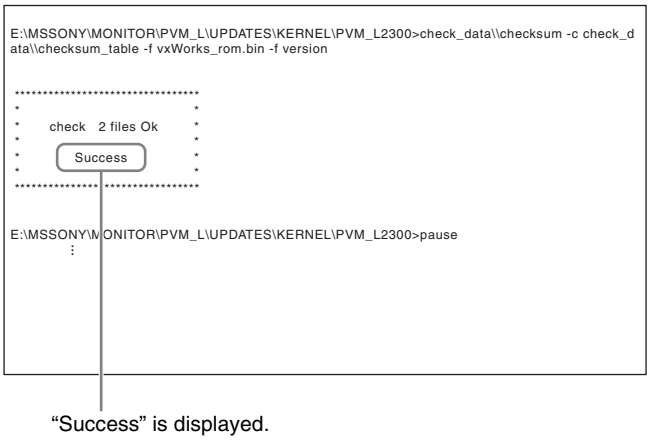
- MSSONY/MONITOR/PVM_L/UPDATES/SOFT/PVM_L2300/checksum_soft.bat
- MSSONY/MONITOR/PVM_L/UPDATES/KERNEL/PVM_L2300/checksum_kernel.bat
- MSSONY/MONITOR/PVM_L/UPDATES/FPGA/PVM_L2300/checksum_fpga.bat
- MSSONY/MONITOR/BVM_L/UPDATES/SOFT/BKM_16R/checksum_soft.bat
- MSSONY/MONITOR/BVM_L/UPDATES/KERNEL/BKM_16R/checksum_kernel.bat

Display example

Confirming the upgrade data of the kernel of the monitor

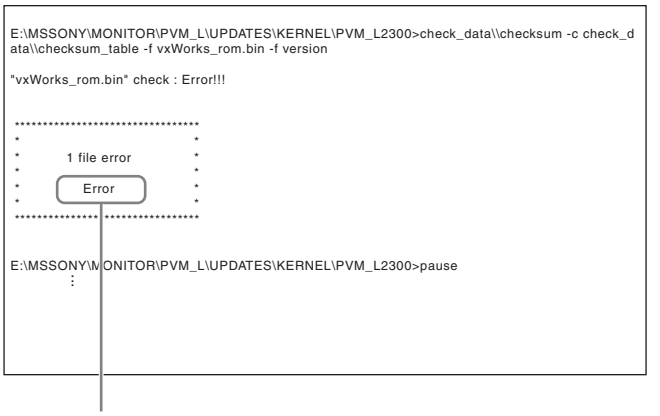
Double-click the following file:
MSSONY/MONITOR/PVM_L/UPDATES/KERNEL/PVM_L2300/checksum_kernel.bat

When the data are saved correctly



"Success" is displayed.

When the data are not saved correctly



"Error" is displayed.

Upgrading the monitor

1 Insert the "Memory Stick PRO" into the Memory Stick insertion slot of the controller.

2 Select the Monitor Upgrade menu in the System Configuration menu (page 67).

3 Enter the 4-digit password.

The Monitor Upgrade screen is displayed, and the current version is indicated.

For the password, see Password (page 65) of the System Configuration menu.

4 Select the item to upgrade from among Software Upgrade, Kernel Upgrade, and FPGA Upgrade.

After about 10 seconds, the old and new software versions or kernel version, and the message to confirm that you with to execute the upgrade are displayed. When FPGA Upgrade is selected, the new versions of FPGA1, FPGA2, FPGA CORE, starting from the left, and a confirmation message are displayed.

Display example
Monitor software will be upgraded and monitor will restart.
Are you sure?

5 Confirm the data version and press the ENTER (Ent) button.

Upgrading starts.
The "In progress ■" is displayed and "■" flashes during upgrading. The "■" indication may stop flashing during upgrading, but the data are being upgraded correctly.
It takes about 6 minutes to upgrade the software and about 1 minute to upgrade the kernel or FPGA data.

Notes

- Do not remove the "Memory Stick PRO" from the Memory Stick insertion slot during upgrading or disconnect the LAN cable between the monitor and controller.
- Do not turn off the power of the monitor and controller during upgrading.

After completion of upgrading, the display on the screen disappears, and the system is restarted. After restarting, the previous screen is displayed.

6 Select the Monitor Upgrade menu in the System Configuration menu and confirm that the version of the selected item has been upgraded.

When the upgrade sequence does not move forward correctly, the message such as "Procedure failure" is displayed in red. If this error message is displayed, contact your Sony representative.

Upgrading the controller

1 Insert the "Memory Stick PRO" into the Memory Stick insertion slot of the controller.

2 Select the Controller Upgrade menu in the Controller menu (page 75).

3 Enter the 4-digit password.

The Controller Upgrade screen is displayed, and the current version is indicated.

For the password, see Password (page 65) of the System Configuration menu.

4 Select the item to upgrade from Software Upgrade or Kernel Upgrade.

After about 10 seconds, the old and new software versions or kernel version, and the message to confirm that you wish to execute the upgrade are displayed.

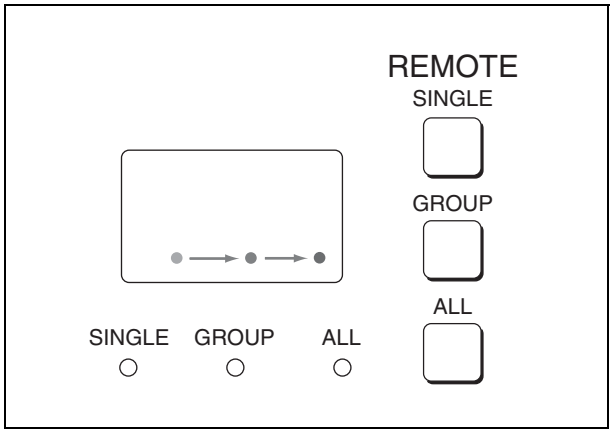
Display example
Controller software will be upgraded and controller will restart.
Are you sure?

5 Confirm the data version and press the ENTER (Ent) button.

Upgrading starts.

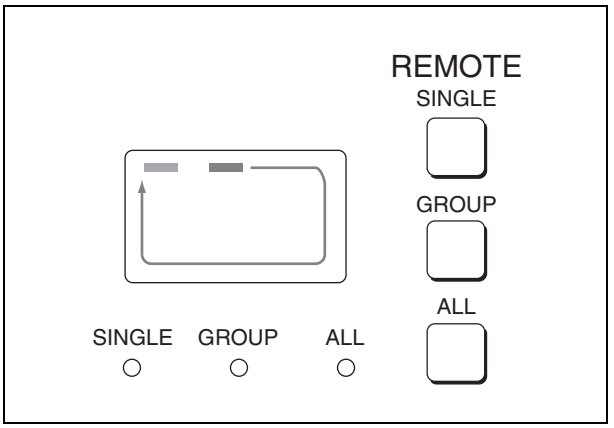
When a version earlier than 1.2 of the software for the controller is upgraded

When upgrading starts, the dot (indicator) lights as moving from left to right in the display window of the controller. The dot may stop during upgrading, but the data are being upgraded correctly.
It takes about 1 minute to upgrade the controller.



When version 1.2 or later of the software for the controller is upgraded

When the upgrading starts, the indicator lights as turning clockwise in the display window of the controller. The indicator may stop during upgrading, but the data are being upgraded correctly.
It takes about 1 minute to upgrade the controller. After upgrading, all indicators light for about 1 second.



Notes

- Do not remove the "Memory Stick PRO" from the Memory Stick insertion slot during upgrading or disconnect the LAN cable between the monitor and controller.
- Do not turn off the power of the monitor and controller during upgrading.

After completion of upgrading, the system is restarted. The network between the monitor and controller is reconnected, and you can operate the controller.

When the upgrade sequence does not move forward correctly, the error message "Err" is displayed in the display window. If this error message is displayed, contact your Sony representative.

6 Exit the Controller Upgrade menu, select the Controller Upgrade menu again, and confirm that the version of the selected item has been upgraded.

Appendixes

Specifications

General

LCD panel	a-Si TFT Active Matrix
Picture size	22.5 inches
Display area	483.84 (H) × 302.4 (V)
Resolution	1920 (H) × 1200 (V) pixel
Backlight	CCFL
Panel drive	RGB 10 bit
Panel frame rate	96/100/120 Hz
Viewing angle	85º/85º/85º/85º (up/down/left/right, contrast 10:1)
Pixel efficiency	99.99%
Warm-up time	Approx. 30 minutes
Power consumption	Approx. 140 W (at maximum load) Approx. 80 W (the BKM-243HS is attached, the default status)
Power requirements	100 to 240 V AC, 1.4 to 0.6 A, 50/60 Hz
Peak inrush current	(1) Power ON, current probe method: 20 A (100 V), 53 A (240V) (2) Hot switching inrush current, measured in accordance with European standard EN55103-1: 12 A (230 V)
Mass	Approx. 16 kg (35 lb 4 oz)

Input/Output

Option slot	Four slots Signal format Refer to “Available Signal Systems” (page 92) and “Available Signal Formats” (page 93).
PC input	DVI-D × 1 HDCP correspondence Signal format Refer to “DVI-D” (page 95) of “Available Signal Formats”.
HDMI	HDMI™ × 1 Deep Color correspondence Signal format Refer to “HDMI” (page 97) of “Available Signal Formats”.
Control	OPTION A: Mini-DIN 8-pin (female) × 1 OPTION B: USB (Type A) type × 1 LAN (10BASE-T/100BASE-TX): RJ-45 × 1 PARALLEL REMOTE: D-sub 9-pin (female) × 1 DC 5V OUT: Circle 4-pin (female) × 1

Picture performance

Normal scan	0% scan
Native scan	Mapping the pixels of the signal to the panel to one-to-one mode, or displaying an SD signal of non-square pixels (the number of H pixels of the signal system is 720 or 1440) or a 640 × 480 SD signal of DVI video/HDMI video by scaling processing of doubling for the V direction and correct aspect ratio for the H direction and also optimizing and displaying a picture by modifying the aperture coefficient value, filter coefficient value, etc.
Under scan	3% under scan
Over scan	Mask of 5% over scan portion in the normal scan
Color temperature	D65, D93 (Setting possible in other color temperature)
Standard luminance	100 cd/m^2 (Preset1 to Preset5) (1.0 Vp-p reference signal, 100% white signal input)
Color space (color gamut)	ITU-R BT.709, BVM EBU, BVM SMPTE-C, PVM-L2300 Native* * The PVM-L2300 individual chromaticity points. The widest

color space setting of the signal reproduced by the PVM-L2300

	x	y
R	0.643	0.334
G	0.212	0.673
B	0.150	0.060

(Typical)

Operating conditions

Temperature 0 °C to 35 °C (32 °F to 95 °F)
Optimum temperature
20 °C to 30 °C (68 °F to 86 °F)
Humidity 0% to 90% (no condensation)
Pressure 700 hPa to 1060 hPa

Storage and transport conditions

Temperature –20 °C to +60 °C (–4 °F to +140 °F)
Humidity 0% to 90%
Pressure 700 hPa to 1060 hPa

Accessories supplied

AC power cord (1)
AC plug holder (1)
Bracket (1)
Connection cable for color temperature adjustment (1)
Operation Manual (Japanese, English, each 1)
CD-ROM (1)
Using the CD-ROM Manual (1)

Optional accessories

BKM-16R Monitor Control Unit
BKM-37H/BKM-38H Controller Attachment Stand
SMF-700 Monitor Interface Cable, Sony
BKM-23M Monitor Protection Panel
BKM-220D SDI 4:2:2 Input Adaptor (with serial number 2100001 or higher)
BKM-227W NTSC/PAL Input Adaptor
BKM-229X Analog Component Input Adaptor (with serial number 2200001 or higher)
BKM-243HS HD/D1-SDI Input Adaptor (with serial number 2108355 or higher)
BKM-244CC HD/SD-SDI Closed Caption Adaptor

Note

BKM-220D: This equipment may not meet the requirement for the electromagnetic interference standard if an input adaptor with a serial number that is not designated is installed.
BKM-229X: This equipment may not work correctly or you may not be satisfied with the performance if an input adaptor with a serial number that is not designated is installed.
BKM-243HS: This equipment may not meet the requirement for the electromagnetic interference standard or work correctly, or you may not be satisfied with the performance if an input adaptor with a serial number that is not designated is installed.

Design and specifications are subject to change without notice.

Notes
- Always make a test recording, and verify that it was recorded successfully.
  SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

Input Signals and Adjustable/Setting Items

Item	Input signal											
	Analog						SDI			DVI-D		HDMI
	Composite	Y/C	Component (YPbPr)		RGB		D1	HD		Video	Computer	
			SD	HD	SD	HD	YPbPr	YPbPr	RGB	RGB	RGB	
CONTRAST	○	○	○	○	○	○	○	○	○	○	○	○
BRIGHT	○	○	○	○	○	○	○	○	○	○	○	○
CHROMA	○	○	○	○	×	×	○	○	×	×	×	○ (*7)
PHASE	○ (NTSC)	○ (NTSC)	×	×	×	×	×	×	×	×	×	×
Picture Auto Adjust	○	○	○	○	○	○	×	×	×	×	×	×
Component Level	×	×	○ (480i)	×	×	×	×	×	×	×	×	×
NTSC Setup Level	○ (NTSC)	○ (NTSC)	×	×	×	×	×	×	×	×	×	×
Betacam Setup Level	×	×	○ (480i)	×	×	×	×	×	×	×	×	×
Position Adj	○	○	○	○	○	○	×	×	×	×	×	×
Scan Mode	○	○	○	○	○	○	○	○	○	○	×	○(*10)
Native Scan (×1, ×2)(*1)	○	○	○	○	○	○	○	○	○	○	○	○
Native Scan (Aspect Correction)	○	○	○	×	○	×	○	×	×	○ (*5)	×	○ (*5)
16 : 9	○	○	○	○ (*2)	○	○ (*2)	○	○ (*2)	○ (*2)	○ (*3)	×	○ (*3)(*8)
H Delay	○	○	○	○	○	○	○	○	○	×	×	×
V Delay	○	○	○	○	○	○	○	○	○	×	×	×
External Sync	×	×	○	○	○	○	×	×	×	×	×	×
Comb	○	×	×	×	×	×	×	×	×	×	×	×
Degauss (*4)	×	×	×	×	×	×	×	×	×	×	×	×
Aperture	○	○	○	○	○	○	○	○	○	○	×	○(*9)
Mono	○	○	○	○	○	○	○	○	○	○	○	○
Blue Only	○	○	○	○	○	○	○	○	○	○	○	○
R Off	○	○	○	○	○	○	○	○	○	○	○	○
G Off	○	○	○	○	○	○	○	○	○	○	○	○
B Off	○	○	○	○	○	○	○	○	○	○	○	○
Chroma Up	○	○	○	○	×	×	○	○	×	×	×	○(*7)
Capture Load	○	○	○	○	○	○	○	○	○	○	○	○
Pixel Zoom	○	○	○	○	○	○	○	○	○	○	○	○
Marker	○	○	○	○	○	○	○	○	○	○	×	○(*10)
Aspect Marker	○	○	○	○	○	○	○	○	○	○	×	○(*10)
Area Marker 1	○	○	○	○	○	○	○	○	○	○	×	○(*10)
Area Marker 2	○	○	○	○	○	○	○	○	○	○	×	○(*10)
Side by Side	○	○	○	○	○	○	○	○	○	○	○	○
Char Off	○	○	○	○	○	○	○	○	○	○	○	○
Color Temp	○	○	○	○	○	○	○	○	○	○	○	○
Capture	×	×	×	×	×	×	×	○	○	×	×	×

Item	Input signal											
	Analog						SDI			DVI-D		HDMI
	Composite	Y/C	Component (YPbPr)		RGB		D1	HD		Video	Computer	
			SD	HD	SD	HD	YPbPr	YPbPr	RGB	RGB	RGB	
Black Frame Insertion	See “Picture·Frame Display” on page 102.											
Interlace												
Black Detail Mode (*6)	○	○	○	○	○	○	○	○	○	○	○	○

○: Adjustable/can be set
×: Not adjustable/cannot be set

*1:Fixed to ×1 when the HD signal, DVI computer signal or HDMI computer signal is input and ×2 when the SD signal is input from BKM-229X.
*2:Fixed to 16:9 with HD signal.
*3:Excludes 640 × 480/60*P. Fixed to 16:9 with HD signal.
*4:Becomes effective when the BVM-A series monitor is controlled.
*5:In effect with SD format
*6:In effect when Gamma (transmission gamma) of the Matrix/Gamma menu is set to 2.2
*7:Functions when the YCbCr signal is input.
*8:Functions when the HDMI Auto menu (page 50) of the Screen Aspect menu is set to Off.
Does not function when the computer signal of HDMI is input.
*9:For the operable input signal, see “Aperture Modification Frequency” (page 98).
*10:Does not function when the computer signal of HDMI is input.

Available Signal Systems

Input adaptor

Signal system	Total lines per frame	Active lines per frame	Frame rate (Hz)	Scanning format	Aspect ratio	Standard	Display on the monitor
720×576/50i	625	576	25	2:1 Interlace	16:9/4:3	Rec.ITU-R BT.601	575/50I
1440×576/50i*	625	576	25	2:1 Interlace	16:9/4:3		575/50I
720×487/59.94i	525	487	30/1.001	2:1 Interlace	16:9/4:3	Rec.ITU-R BT.601	480/60I
1440×487/59.94i*	525	487	30/1.001	2:1 Interlace	16:9/4:3		480/60I
1440×576/50P*	625	576	50	Progressive	16:9/4:3		576/50P
1440×483/59.94P*	525	483	60/1.001	Progressive	16:9/4:3		480/60P
1920×1080/24PsF	1125	1080	24	Progressive	16:9	SMPTE-RP211	1080/24PsF
1920×1080/ 23.98PsF	1125	1080	24/1.001	Progressive	16:9	SMPTE-RP211	
1920×1080/25PsF	1125	1080	25	Progressive	16:9	SMPTE-RP211	1080/25PsF
1920×1080/30PsF	1125	1080	30	Progressive	16:9	SMPTE-RP211	1080/30PsF
1920×1080/ 29.97PsF	1125	1080	30/1.001	Progressive	16:9	SMPTE-RP211	
1920×1080/24P	1125	1080	24	Progressive	16:9	SMPTE-274M	1080/24P
1920×1080/23.98P	1125	1080	24/1.001	Progressive	16:9	SMPTE-274M	
1920×1080/25P	1125	1080	25	Progressive	16:9	SMPTE-274M	1080/25P
1920×1080/30P	1125	1080	30	Progressive	16:9	SMPTE-274M	1080/30P
1920×1080/29.97P	1125	1080	30/1.001	Progressive	16:9	SMPTE-274M	
1920×1080/50i	1125	1080	25	2:1 Interlace	16:9	SMPTE-274M	1080/50I
1920×1080/60i	1125	1080	30	2:1 Interlace	16:9	SMPTE-274M	1080/60I
1920×1080/59.94i	1125	1080	30/1.001	2:1 Interlace	16:9	SMPTE-274M	
1920×1080/50P	1125	1080	50	Progressive	16:9	SMPTE-274M	1080/50P
1920×1080/60P	1125	1080	60	Progressive	16:9	SMPTE-274M	1080/60P
1920×1080/59.94P	1125	1080	60/1.001	Progressive	16:9	SMPTE-274M	
1280×720/24P	750	720	24	Progressive	16:9	SMPTE-296M	720/24P
1280×720/23.98P	750	720	24/1.001	Progressive	16:9	SMPTE-296M	
1280×720/25P	750	720	25	Progressive	16:9	SMPTE-296M	720/25P
1280×720/30P	750	720	30	Progressive	16:9	SMPTE-296M	720/30P
1280×720/29.97P	750	720	30/1.001	Progressive	16:9	SMPTE-296M	
1280×720/50P	750	720	50	Progressive	16:9	SMPTE-296M	720/50P
1280×720/60P	750	720	60	Progressive	16:9	SMPTE-296M	720/60P
1280×720/59.94P	750	720	60/1.001	Progressive	16:9	SMPTE-296M	

*: The analog component signal or analog RGB signal from BKM-229X is processed in 720 dots × 2 (1440 dots).

- For Details on the available signal system for the DVI-D input signal, see “DVI-D” (page 95) of “Available Signal Formats”.
- For details on the available signal system for the HDMI input signal, see “HDMI” (page 97) of “Available Signal Formats”.

Available Signal Formats

Input adaptor

Signal format			Applied system	BKM-220D	BKM-227W	BKM-229X	BKM-243HS/244CC	Standard
Analog Composite								
NTSC	Setup level	0	487/59.94i	×	○	×	×	SMPTE-170M
		7.5						
PAL			576/50i	×	○	×	×	Rec.ITU-R BT.470
PAL-M			487/59.94i	×	○	×	×	
SECAM			576/50i	×	○	×	×	
Analog Y/C								
NTSC	Setup level	0	487/59.94i	×	○	×	×	
		7.5						
PAL			576/50i	×	○	×	×	
PAL-M			487/59.94i	×	○	×	×	
SECAM			576/50i	×	○	×	×	
Analog Component								
			1080/60*i	×	×	○	×	SMPTE-274M
			1080/50i	×	×	○	×	
			1080/24*PsF	×	×	○	×	SMPTE-RP211
			1080/25PsF	×	×	○	×	
			1080/30*PsF	×	×	○	×	
			1080/24*P	×	×	○	×	SMPTE-274M
			1080/25P	×	×	○	×	
			1080/30*P	×	×	○	×	
			720/60*P	×	×	○	×	SMPTE-296M
			720/50P	×	×	○	×	
			483/59.94P	×	×	○	×	SMPTE-293M/Rec.ITU-R BT.1358
			576/50P	×	×	○	×	Rec.ITU-R BT.1358
			576/50i	×	×	○	×	EBU N10
Component level	SMPTE/EBU N10		487/59.94i	×	×	○	×	
	Betacam	0						
		7.5						
Analog RGB								
			1080/60*i	×	×	○	×	SMPTE-274M
			1080/50i	×	×	○	×	
			1080/24*PsF	×	×	○	×	SMPTE-RP 211
			1080/25PsF	×	×	○	×	
			1080/30*PsF	×	×	○	×	

Signal format				Applied system	BKM-220D	BKM-227W	BKM-229X	BKM-243HS/244CC	Standard
				1080/24*P	×	×	○	×	SMPTE-274M
				1080/25P	×	×	○	×	
				1080/30*P	×	×	○	×	
				720/60*P	×	×	○	×	SMPTE-296M
				720/50P	×	×	○	×	
				483/59.94P	×	×	○	×	SMPTE-293M/Rec.ITU-R BT.1358
				576/50P	×	×	○	×	Rec.ITU-R BT.1358
				487/59.94i	×	×	○	×	
				576/50i	×	×	○	×	EBU N10
D1									
				720×487/59.94i	○	×	×	○	SMPTE-259M
				720×576/50i	○	×	×	○	
HD-SDI									
Single-link	4:2:2	YPbPr	10bit	1920×1080/24*PsF	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/25PsF	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/30*PsF	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/24*P	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/25P	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						

Signal format				Applied system	BKM-220D	BKM-227W	BKM-229X	BKM-243HS/244CC	Standard
Single-link	4:2:2	YPbPr	10bit	1920×1080/30*P	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/50i	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Single-link	4:2:2	YPbPr	10bit	1920×1080/60*i	×	×	×	○	SMPTE-292M
Dual-link	4:4:4	YPbPr	10bit		×	×	×	○(2)	SMPTE-372M
		RGB	10bit						
		YPbPr	12bit						
		RGB	12bit						
Dual-link	4:2:2	YPbPr	10bit	1920×1080/50P	×	×	×	○(2)	
Dual-link	4:2:2	YPbPr	10bit	1920×1080/60*P	×	×	×	○(2)	
Single-link	4:2:2	YPbPr	10bit	1280×720/24*P	×	×	×	○	SMPTE-292M
Single-link	4:2:2	YPbPr	10bit	1280×720/25P	×	×	×	○	
Single-link	4:2:2	YPbPr	10bit	1280×720/30*P	×	×	×	○	
Single-link	4:2:2	YPbPr	10bit	1280×720/50P	×	×	×	○	
Single-link	4:2:2	YPbPr	10bit	1280×720/60*P	×	×	×	○	

○: Signal can be reproduced.
○(2): Two adaptors are used.
*: Also compatible with 1/1.001.

DVI-D

Signal format				System	Interface sampling frequency [MHz]	Aspect ratio	Standard
DVI Video							
Single-link	4:4:4	RGB	8bit	640 × 480/60*P	25.200*	4:3	CEA-861
Single-link	4:4:4	RGB	8bit	720 × 480/60*P	27.027*	4:3/16:9	
Single-link	4:4:4	RGB	8bit	1280 × 720/60*P	74.250*	16:9	
Single-link	4:4:4	RGB	8bit	1920 × 1080/60*i	74.250*	16:9	
Single-link	4:4:4	RGB	8bit	720 (1440)*** × 480/60*i	27.027*	4:3/16:9	
Single-link	4:4:4	RGB	8bit	720 × 576/50P	27.000*	4:3/16:9	
Single-link	4:4:4	RGB	8bit	1280 × 720/50P	74.250	16:9	
Single-link	4:4:4	RGB	8bit	1920 × 1080/50i	74.250	16:9	
Single-link	4:4:4	RGB	8bit	720 (1440)*** × 576/50i	27.000	4:3/16:9	
Single-link	4:4:4	RGB	8bit	1920 × 1080/60*P	148.500*	16:9	
Single-link	4:4:4	RGB	8bit	1920 × 1080/50P	148.500	16:9	
Single-link	4:4:4	RGB	8bit	1920 × 1080/24*P	74.250*	16:9	

Signal format				System	Interface sampling frequency [MHz]	Aspect ratio	Standard
Single-link	4:4:4	RGB	8bit	1920 × 1080/25P	74.250	16:9	CEA-861
Single-link	4:4:4	RGB	8bit	1920 × 1080/30*P	74.250*	16:9	
DVI Computer**							
Single-link	4:4:4	RGB	8bit	fH: 28-75 kHz fV: 48-85 Hz Maximum resolution: 1920×1200/59.95P	25.000 - 162.000		

*: Also compatible with 1/1.001.
**: Supports the progressive signal with square pixel structure. The interlace signal is not applicable.
***: Pixel Repetition = 2 (transmit the same pixel twice)

- The quantization range of the DVI input signal is set in the RGB Range menu (page 52).
- The picture is not displayed correctly when the item (Video/Computer) selected in the DVI menu (page 49) of the Format menu does not correspond to the input signal.
- When Computer is selected in the DVI menu of the Format menu and the output signal from the computer, etc. is not displayed correctly, select Video for confirmation.
- When Video is selected in the DVI menu of the Format menu and the picture is not displayed correctly, select Computer for confirmation.

HDMI

Signal format		System	Interface sampling frequency [MHz]	Aspect ratio	Standard
HDMI					
RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	8/10/12bit** 8/10/12bit** 12bit**	640 × 480/60*P	25.200*	4:3	CEA-861
		720 × 480/60*P	27.027*	4:3/16:9	
		1280 × 720/60*P	74.250*	16:9	
		1920 × 1080/60*i	74.250*	16:9	
		720 (1440)*** × 480/60*i	27.027*	4:3/16:9	
		720 × 576/50P	27.000*	4:3/16:9	
		1280 × 720/50P	74.250	16:9	
		1920 × 1080/50i	74.250	16:9	
		720 (1440)*** × 576/50i	27.000	4:3/16:9	
		1920 × 1080/60*P	148.500*	16:9	
		1920 × 1080/50P	148.500	16:9	
		1920 × 1080/24*P	74.250*	16:9	
		1920 × 1080/25P	74.250	16:9	
		1920 × 1080/30*P	74.250*	16:9	
		800 × 600/60P	40.000	4:3	VESA
		1024 × 768/60P	65.000	4:3	
		1280 × 960/60P	108.000	4:3	
		1280 × 1024/60P	108.000	5:4	
		1400 × 1050/60P	121.750	4:3	

*: Also compatible with 1/1.001.
**: RGB/YCbCr format and 8/10/12bit are selected automatically according to the input signal.
***: Pixel Repetition = 2 (transmit the same pixel twice)

- The quantization level of the HDMI input signal is set in the RGB Range menu (page 52).
- The aspect ratio of the HDMI input signal is manually set when the HDMI Auto menu (page 50) of the Screen Aspect menu is set to Off.
- The 800 × 600, 1024 × 768, 1280 × 960, 1280 × 1024 and 1400 × 1050 signals are the computer signals of HDMI in this manual.

Aperture Modification Frequency

Signal system	Serial digital input		Analog input			DVI-D/HDMI input
	SDI	HD-SDI	Composite (Y/C)	Component (YP_bP_r)	RGB	RGB
Input adaptor						
576/50i	5 MHz		5 MHz	5 MHz	5 MHz	
487/59.94i	5 MHz		5 MHz	5 MHz	5 MHz	
576/50P				10 MHz	10 MHz	
483/59.94P				10 MHz	10 MHz	
1080/24*PsF		25 MHz		25 MHz	25 MHz	
1080/24*P		25 MHz		25 MHz	25 MHz	
1080/50i (25PsF)		25 MHz		25 MHz	25 MHz	
1080/25P		25 MHz		25 MHz	25 MHz	
1080/60*i (30*PsF)		25 MHz		25 MHz	25 MHz	
1080/30*P		25 MHz		25 MHz	25 MHz	
720/24*P		25 MHz				
720/25P		25 MHz				
720/30*P		25 MHz				
720/50P		25 MHz		25 MHz	25 MHz	
720/60*P		25 MHz		25 MHz	25 MHz	
2048×1080/24*PsF		25 MHz			25 MHz	
2048×1080/24*P		25 MHz			25 MHz	
1080/50P		50 MHz				
1080/60*P		50 MHz				
DVI Video						
640×480/60*P						10 MHz
720×480/60*P						10 MHz
1280×720/60*P						25 MHz
1920×1080/60*i						25 MHz
720 (1440)**×480/60*i						5 MHz
720×576/50P						10 MHz
1280×720/50P						25 MHz
1920×1080/50i						25 MHz
720 (1440)**×576/50i						5 MHz
1920×1080/60*P						50 MHz
1920×1080/50P						50 MHz
1920×1080/24*P						25 MHz
1920×1080/25P						25 MHz
1920×1080/30*P						25 MHz

*: Also compatible with 1/1.001
**: Pixel Repetition = 2 (transmit the same pixel twice)
Blank column: The signal cannot be input or the aperture modification does not operate for that signal even if it is input.

Picture Display Size

Input adaptor

Signal system	Aspect ratio	Native Scan ×1	Native Scan ×2	Native Scan Aspect Correction	Normal Scan	Under Scan	Over Scan	Side by Side
		(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)
720 × 576/50i	4:3	720 × 576	1440 × 1152	1575 × 1152	1477 × 1080	1432 × 1048	1407 × 1029	960 × 702
	16:9			2100 × 1152	1920 × 1053	1862 × 1022	1829 × 1003	960 × 527
1440 × 576/50i**	4:3		1440 × 1152	1575 × 1152	1477 × 1080	1432 × 1048	1407 × 1029	960 × 702
	16:9			2100 × 1152	1920 × 1053	1862 × 1022	1829 × 1003	960 × 527
720 × 487/59.94i	4:3	720 × 487	1440 × 974	1302 × 974	1443 × 1080	1400 × 1048	1374 × 1029	960 × 718
	16:9			1736 × 974	1920 × 1077	1862 × 1045	1829 × 1026	960 × 539
1440 × 487/59.94i**	4:3		1440 × 974	1302 × 974	1443 × 1080	1400 × 1048	1374 × 1029	960 × 718
	16:9			1736 × 974	1920 × 1077	1862 × 1045	1829 × 1026	960 × 539
1440 × 576/50P**	4:3		1440 × 1152	1575 × 1152	1477 × 1080	1432 × 1048	1407 × 1029	960 × 702
	16:9			2100 × 1152	1920 × 1053	1862 × 1022	1829 × 1003	960 × 527
1440 × 483/59.94P**	4:3		1440 × 966	1302 × 966	1455 × 1080	1412 × 1048	1386 × 1029	960 × 712
	16:9			1736 × 966	1920 × 1069	1862 × 1037	1829 × 1018	960 × 534
1920 × 1080/24*PsF	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/25PsF	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/30*PsF	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/24*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/25P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/30*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/24*P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/25P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/30*P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/50P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/60*P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540

*: Also compatible with 1/1.001.
**: The analog component signal or analog RGB signal from BKM-229X is processed in 720 dots × 2 (1440 dots).

DVI-D

Signal system	Aspect ratio	Native Scan ×1	Native Scan ×2	Native Scan Aspect Correction	Normal Scan	Under Scan	Over Scan	Side by Side
		(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)
DVI Video								
640 × 480/60*P	4:3	640 × 480	1280 × 960	1280 × 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
720 × 480/60*P	4:3	720 × 480	1440 × 960	1280× 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			1707× 960	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/60*P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720(1440)** × 480/60*i	4:3	720 × 480	1440 × 960	1280 × 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			1707× 960	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720 × 576/50P	4:3	720 × 576	1440 × 1152	1536 × 1152	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			2048× 1152	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/50P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720(1440)** × 576/50i	4:3	720 × 576	1440 × 1152	1536 × 1152	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			2048× 1152	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/24*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/25P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/30*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
DVI Computer								
fH: 28-75 kHz fV: 48-85 Hz Maximum resolution: 1920 × 1200/59.95P								

*: Also compatible with 1/1.001
**: Pixel Repetition = 2 (transmit the same pixel twice)
・ Over Scan: The area size where 5% over scan portion in the normal scan is masked.
・ When Native Scan Mode is set to Aspect Correction, the area over the H size (1920) is not displayed.

HDMI

Signal system	Aspect ratio	Native Scan ×1	Native Scan ×2	Native Scan Aspect Correction	Normal Scan	Under Scan	Over Scan	Side by Side
		(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)
HDMI								
640 × 480/60*P	4:3	640 × 480	1280 × 960	1280 × 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
720 × 480/60*P	4:3	720 × 480	1440 × 960	1280 × 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			1707 × 960	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/60*P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720(1440)** × 480/60*i	4:3	720 × 480	1440 × 960	1280 × 960	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			1707 × 960	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720 × 576/50P	4:3	720 × 576	1440 × 1152	1536 × 1152	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			2048 × 1152	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1280 × 720/50P	16:9	1280 × 720			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50i	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
720(1440)** × 576/50i	4:3	720 × 576	1440 × 1152	1536 × 1152	1440 × 1080	1397 × 1048	1371 × 1029	960 × 720
	16:9			2048 × 1152	1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/60*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/50P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/24*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
1920 × 1080/25P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540

Signal system	Aspect ratio	Native Scan ×1	Native Scan ×2	Native Scan Aspect Correction	Normal Scan	Under Scan	Over Scan	Side by Side
		(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)	(H) × (V)
1920 × 1080/30*P	16:9	1920 × 1080			1920 × 1080	1862 × 1048	1829 × 1029	960 × 540
800 × 600/60P (SVGA)	4:3	800 × 600						960 × 720
1024 × 768/60P (XGA)	4:3	1024 × 768						960 × 720
1280 × 960/60P (SXGA)	4:3	1280 × 960						960 × 720
1280 × 1024/60P (SXGA)	5:4	1280 × 1024						960 × 768
1400 × 1050/60P (SXGA+)	4:3	1400 × 1050						960 × 720

*: Also compatible with 1/1.001
**: Pixel Repetition = 2 (transmit the same pixel twice)
・ Over Scan: The area size where 5% over scan portion in the normal scan is masked.
・ The aspect ratio is manually set when the HDMI Auto menu (page 50) of the Screen Aspect menu is set to Off.

Picture·Frame Display

Input adaptor

Signal system	Black frame insertion	Interlace	Display frame rate [Hz]
720 × 576/50i	○	○	100
1440 × 576/50i**	○	○	100
720 × 487/59.94i	○	○	120/1.001
1440 × 487/59.94i**	○	○	120/1.001
1440 × 576/50P**	○	×	100
1440 × 483/59.94P**	○	×	120/1.001
1920 × 1080/24*PsF	×	×	96*
1920 × 1080/25PsF	○	○*1	100
1920 × 1080/30*PsF	○	○*1	120*
1920 × 1080/24*P	×	×	96*
1920 × 1080/25P	○	×	100
1920 × 1080/30*P	○	×	120*
1920 × 1080/50i	○	○*2	100
1920 × 1080/60*i	○	○*2	120*
1920 × 1080/50P	○	×	100
1920 × 1080/60*P	○	×	120*
1280 × 720/24*P	×	×	96*
1280 × 720/25P	○	×	100
1280 × 720/30*P	○	×	120*
1280 × 720/50P	○	×	100
1280 × 720/60*P	○	×	120*

*: Also compatible with 1/1.001.

**: The analog component signal or analog RGB signal from BKM-229X is processed in 720 dots × 2 (1440 dots).

*1: When 1080I is selected in the 1080I/PsF menu of the Input Configuration menu, the signal is displayed in interlace mode in order to equate it with the interlace signal input.

*2: Functions when 1080I is selected in the 1080I/PsF menu of the Input Configuration menu.

DVI-D

Signal system	Black frame insertion	Interlace	Display frame rate [Hz]
DVI Video			
640 × 480/60*P	○	×	120*
720 × 480/60*P	○	×	120*
1280 × 720/60*P	○	×	120*
1920 × 1080/60*i	○	○	120*
720(1440)** × 480/60*i	○	○	120*
720 × 576/50P	○	×	100
1280 × 720/50P	○	×	100
1920 × 1080/50i	○	○	100
720(1440)** × 576/50i	○	○	100
1920 × 1080/60*P	○	×	120*
1920 × 1080/50P	○	×	100
1920 × 1080/24*P	×	×	96*
1920 × 1080/25P	○	×	100
1920 × 1080/30*P	○	×	120*
DVI Computer			
fH: 28-75 kHz fV: 48-85 Hz Maximum resolution: 1920 × 1200/59.95P	×	×	fV 48-60 Hz: 2 × fV fV other than above: Converted to 2 × 60 Hz

* : Also compatible with 1/1.001.
**: Pixel Repetition = 2 (transmit the same pixel twice)

HDMI

Signal system	Black frame insertion	Interlace	Display frame rate [Hz]
HDMI			
640 × 480/60*P	○	×	120*
720 × 480/60*P	○	×	120*
1280 × 720/60*P	○	×	120*
1920 × 1080/60*i	○	○	120*
720(1440)** × 480/60*i	○	○	120*
720 × 576/50P	○	×	100
1280 × 720/50P	○	×	100
1920 × 1080/50i	○	○	100
720(1440)** × 576/50i	○	○	100
1920 × 1080/60*P	○	×	120*
1920 × 1080/50P	○	×	100
1920 × 1080/24*P	×	×	96*
1920 × 1080/25P	○	×	100
1920 × 1080/30*P	○	×	120*
800 × 600/60P (SVGA)	×	×	120
1024 × 768/60P (XGA)	×	×	120
1280 × 960/60P (SXGA)	×	×	120

Signal system	Black frame insertion	Interlace	Display frame rate [Hz]
1280 × 1024/60P (SXGA)	×	×	120
1400 × 1050/60P (SXGA+)	×	×	120

* : Also compatible with 1/1.001.
**: Pixel Repetition = 2 (transmit the same pixel twice)

Matrix/Gamma Setting Table

Input adaptor

- M in the following table shows Matrix.
- G in the following table shows Gamma.

Signal format			Signal system	Matrix/Gamma											
				Matrix/ Gamma data setting area	ITU-R BT.709		ITU-R BT.601		SMPTE 240M		xvYCC 709		xvYCC 601		User1 - User5	
					M ITU 709	G 2.2	M ITU 601	G 2.2	M SMPTE 240	G 2.2	M ITU 709	G xv YCC	M ITU 601	G xv YCC	M	G
Analog Composite																
NTSC	Setup level	0	487/59.94i	SD			○								A	B
		7.5														
PAL			576/50i				○									
PAL-M			487/59.94i				○									
SECAM			576/50i				○									
Analog Y/C																
NTSC	Setup level	0	487/59.94i	SD			○								A	B
		7.5														
PAL			576/50i				○									
PAL-M			487/59.94i				○									
SECAM			576/50i				○									
Analog Component																
			1080/60*i	HD	○										A	B
			1080/50i		○											
			1080/ 24*PsF		○											
			1080/ 25PsF		○											
			1080/ 30*PsF		○											
			1080/24*P		○											
			1080/25P		○											
			1080/30*P		○											
			720/60*P		○											
			720/50P		○											
			483/ 59.94P	SD			○									
			576/50P				○									
			576/50i				○									
Component level	SMPTE/ EBU N10		487/59.94i				○									
	Betacam	0														
		7.5														

Signal format				Signal system	Matrix/Gamma											
					Matrix/ Gamma data setting area	ITU-R BT.709		ITU-R BT.601		SMPTE 240M		xvYCC 709		xvYCC 601		User1 - User5	
						M ITU 709	G 2.2	M ITU 601	G 2.2	M SMPTE 240	G 2.2	M ITU 709	G xv YCC	M ITU 601	G xv YCC	M	G
Analog RGB**																	
				1080/60*i	HD	○										A	B
				1080/50i		○											
				1080/24*PsF		○											
				1080/25PsF		○											
				1080/30*PsF		○											
				1080/24*P		○											
				1080/25P		○											
				1080/30*P		○											
				720/60*P		○											
				720/50P		○											
				483/59.94P	SD			○									
				576/50P				○									
				487/59.94i				○									
				576/50i				○									
D1																	
				720 x 487/ 59.94i	SD			○								A	B
				720 x 576/50i				○									
HD-SDI																	
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 24*PsF	HD	○										A	B
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 25PsF		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											

Signal format				Signal system	Matrix/Gamma											
					Matrix/ Gamma data setting area	ITU-R BT.709		ITU-R BT.601		SMPTE 240M		xvYCC 709		xvYCC 601		User1 - User5	
						M ITU 709	G 2.2	M ITU 601	G 2.2	M SMPTE 240	G 2.2	M ITU 709	G xv YCC	M ITU 601	G xv YCC	M	G
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 30*PsF	HD	○										A	B
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 24*P		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 25P		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 30*P		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/50i		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Single-link	4:2:2	YPbPr	10bit	1920 x 1080/ 60*i		○											
Dual-link	4:4:4	YPbPr	10bit			○											
		RGB**	10bit			○											
		YPbPr	12bit			○											
		RGB**	12bit			○											
Dual-link	4:2:2	YPbPr	10bit	1920 x 1080/ 50P		○											
Dual-link	4:2:2	YPbPr	10bit	1920 x 1080/ 60*P		○											
Single-link	4:2:2	YPbPr	10bit	1280 x 720/ 24*P		○											
Single-link	4:2:2	YPbPr	10bit	1280 x 720/25P	HD	○											
Single-link	4:2:2	YPbPr	10bit	1280 x 720/ 30*P		○											
Single-link	4:2:2	YPbPr	10bit	1280 x 720/50P		○											
Single-link	4:2:2	YPbPr	10bit	1280 x 720/ 60*P		○											

*: Also compatible with 1/1.001.
**: The internal fixed value applies to the transmission matrix of the RGB format.

○: Selectable (the default setting)
Blank column: The signal is selectable but the display may not be correct due to the input signal.
×: Not selectable

A: 1. ITU709
2. ITU601
3. SMPTE240M

Selectable from above 1 to 3.

B: 1. 2.2
2. xvYCC

Selectable from above 1 to 2.

DVI-D

- M in the following table shows Matrix.
- G in the following table shows Gamma.

Signal format					System	Matrix/Gamma											
						Matrix/ Gamma data setting area	ITU-R BT.709		ITU-R BT.601		SMPTE 240M		xvYCC 709		xvYCC 601		User1 - User5	
							M ITU 709	G 2.2	M ITU 601	G 2.2	M SMPTE 240	G 2.2	M ITU 709	G xv YCC	M ITU 601	G xv YCC	M	G
DVI Video																		
Single-link	4:4:4	RGB**	8bit	640 × 480/60*P	SD			○										
Single-link	4:4:4	RGB**	8bit	720 × 480/60*P				○										
Single-link	4:4:4	RGB**	8bit	1280 × 720/ 60*P	HD	○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 60*i		○												
Single-link	4:4:4	RGB**	8bit	720 (1440)*** × 480/60*i	SD			○										
Single-link	4:4:4	RGB**	8bit	720 × 576/50P				○										
Single-link	4:4:4	RGB**	8bit	1280 × 720/50P	HD	○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/50i		○												
Single-link	4:4:4	RGB**	8bit	720 (1440)*** × 576/50i	SD			○										
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 60*P	HD	○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 50P		○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 24*P		○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 25P		○												
Single-link	4:4:4	RGB**	8bit	1920 × 1080/ 30*P		○												
DVI Computer																		
Single-link	4:4:4	RGB**	8bit	fH: 28-75 kHz fV: 48-85 Hz Maximum resolution: 1920 × 1200/ 59.95P	DVI Computer	○											**A**	**B**

*: Also compatible with 1/1.001.
**: The internal fixed value applies to the transmission matrix of the RGB format.
***: Pixel Repetition = 2 (transmit the same pixel twice)
○: Selectable (the default setting)

Blank column: The signal is selectable but the display may not be correct due to the input signal.
×: Not selectable

A: 1. ITU709
2. ITU601
3. SMPTE240M

Selectable from above 1 to 3.

B: 1. 2.2
2. xvYCC

Selectable from above 1 to 2.

HDMI

- M in the following table shows Matrix.
- G in the following table shows Gamma***.

Signal format	System	Matrix/Gamma													
		Matrix/ Gamma data setting area	ITU-R BT.709		ITU-R BT.601		SMPTE 240M		xvYCC 709		xvYCC 601		User1 - User5	
			M ITU 709	G 2.2	M ITU 601	G 2.2	M SMPTE 240M	G 2.2	M ITU 709	G xv YCC	M ITU 601	G xv YCC	M	G
HDMI														
4:4:4 RGB** 8/10/12bit 4:4:4 YCbCr 8/10/12bit 4:2:2 YCbCr 12bit	640 × 480/60*P	SD			○								**A**	**B**
	720 × 480/60*P				○									
	1280 × 720/ 60*P	HD	○											
	1920 × 1080/ 60*i		○											
	720 (1440)**** × 480/60*i	SD			○									
	720 × 576/50P				○									
	1280 × 720/50P	HD	○											
	1920 × 1080/50i		○											
	720 (1440)**** × 576/50i	SD			○									
	1920 × 1080/ 60*P	HD	○											
	1920 × 1080/ 50P		○											
	1920 × 1080/ 24*P		○											
	1920 × 1080/ 25P		○											
	1920 × 1080/ 30*P		○											
	800 × 600/60P	HDMI Computer	○											
	1024 × 768/60P		○											
	1280 × 960/60P		○											
	1280 × 1024/ 60P		○											
	1400 × 1050/ 60P		○											

*: Also compatible with 1/1.001.
**: The internal fixed value applies to the transmission matrix of the RGB format.
***: When the quantization range is Full, the internal fixed value applies to the transmission gamma.
****: Pixel Repetition = 2 (transmit the same pixel twice)
○: Selectable (the default setting)
Blank column: The signal is selectable but the display may not be correct due to the input signal.
×: Not selectable

A: 1. ITU709
2. ITU601
3. SMPTE240M

Selectable from above 1 to 3.

B: 1. 2.2
2. xvYCC

Selectable from above 1 to 2.

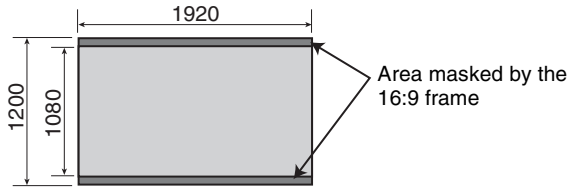
Scan Mode Image

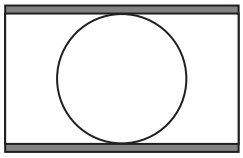
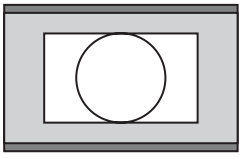
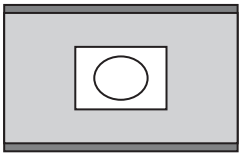
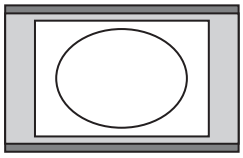
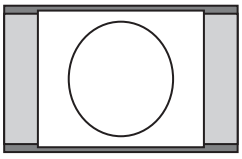
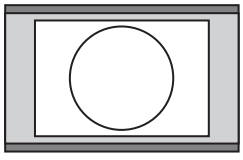
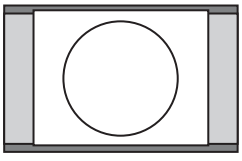
Example: Scan images of available signal system when the input adaptor is installed

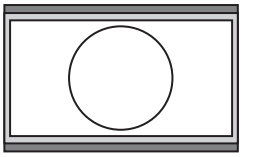
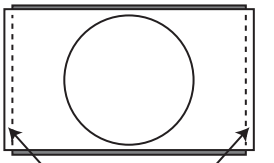
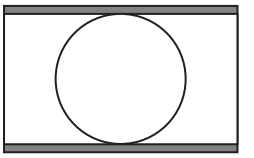
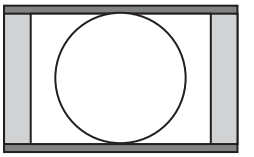
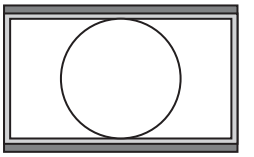
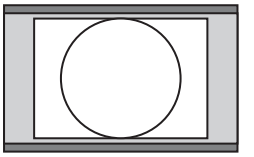
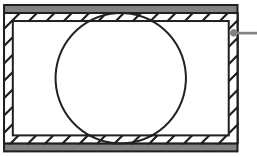
For details of the picture display size, see page 99.

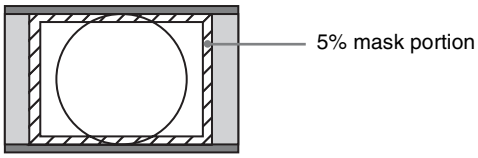
- For setting of the Native Scan Mode menu, see Native Scan Mode (page 54) of the Display Setting menu.
- For setting of Aspect, see the Screen Aspect menu (page 49) of the Input Configuration menu.

Panel size



Scan mode	Input signal system and scan mode image
Native Scan	
Native Scan Mode: ×1	1920 × 1080  1280 × 720  720 × 576 720 × 487 
Native Scan Mode: ×2	720 × 487 1440 × 487 1440 × 483  720 × 576 1440 × 576  Remove the 16:9 frame to display the whole picture.
Native Scan Mode: Aspect Correction Aspect 4:3	720 × 487 1440 × 487 1440 × 483  720 × 576 1440 × 576  To display the whole picture, remove the 16:9 frame.

Scan mode	Input signal system and scan mode image
Native Scan Mode: Aspect Correction Aspect 16:9	720 × 487 1440 × 487 1440 × 483  720 × 576 1440 × 576  The area over the H size is not displayed. To display the whole picture of the V direction, remove the 16:9 frame.
Normal Scan	
Aspect: 16:9	1920 × 1080 1280 × 720 720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483 
Aspect: 4:3	720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483 
Under Scan	
Aspect: 16:9	1920 × 1080 1280 × 720 720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483 
Aspect: 4:3	720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483 
Over Scan	
Aspect: 16:9	1920 × 1080 1280 × 720 720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483  5% mask portion

Scan mode	Input signal system and scan mode image
Aspect: 4:3	720 × 576 720 × 487 1440 × 576 1440 × 487 1440 × 483 

Troubleshooting

This section may help you isolate the cause of a problem and as a result, eliminate the need to contact your Sony service representative.

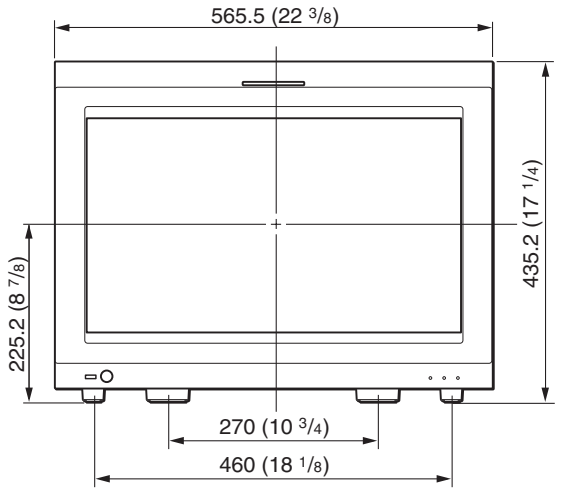
Symptom	Assumed causes	Remedy
The picture that you wish to display is not displayed.	The setting of the Input Configuration menu does not correspond to the input signal.	See the Status menu (page 70) to confirm the setting. When the setting is different from the input signal, set in the Input Configuration menu (page 48).
The color is not displayed correctly.	The color temperature is not set correctly.	Set the color temperature in the Color Temp menu (page 50) of the Input Configuration menu.
	The setting of the emulation or the Matrix/Gamma is not correct.	Set in the Color Gamut menu (page 53) of the Display Setting menu or Matrix/Gamma menu (page 50) of the Input Configuration menu.
	Condensation occurs on the RGB sensor surface of the backlight part.	Turn off the power and allow the unit to dry.
The signals are not displayed in the multi display.	The input signals of INPUT 1 and INPUT 2 of one input adaptor are selected.	Install two or more adaptors and use the different input adaptor for signal A and signal B.
	The reference signal is not input (No Sync status).	Input the reference signal.
	The internal signal is selected as signal A. The internal signal is selected as signal B.	The internal signal is not displayed in the multi display.
The whole area is not displayed.	When the V (vertical) size of the display is over 1080, the some area is covered with the 16:9 frame.	Remove the 16:9 frame to set the aspect ratio to 16:10 (page 19).
The signal input from BKM-227W or BKM-229X is not displayed correctly.	The auto chroma/phase/matrix adjustment has not been performed.	Carry out the auto chroma/phase/matrix adjustment to display the signal input from BKM-227W or BKM-229X.
The pixel zoom does not function.	The native scan mode is not selected.	Set to the native scan mode (page 78).
The marker is not displayed.	The display is set in the multi display or the pixel zoom display.	Set Side by Side to Off in the Function Switch menu (page 59) of the Display Function menu. Set the Pixel Zoom button to off.
	The DVI Computer signal or the computer signal of HDMI is displayed.	The marker is not displayed when the DVI Computer signal or the computer signal of HDMI is input.
	The internal signal is displayed.	The marker is not displayed when the internal signal is input.
	The signal is displayed in H delay mode or V delay mode.	The marker is not displayed in H delay mode or V delay mode.
The signal is not displayed in interlace mode.	The interlace signal is not input.	Input the interlace signal.
	The signal is set to 1080PsF in 1080I/PsF (page 52) of the Input Configuration menu.	Set to 1080I.
	The native scan mode is not selected.	Set to the native scan mode (page 78).

Symptom	Assumed causes	Remedy
The signal is not displayed in black frame insertion mode.	The signal is displayed in the interlace display mode.	Set Interlace to Off (page 60).
	The 24P or 24PsF signal is displayed.	The signal is not displayed in black frame insertion mode when the 24P or 24PsF signal is input.
	The DVI Computer signal or the computer signal of HDMI is displayed.	The signal is not displayed in the black frame insertion mode when the DVI Computer signal or the computer signal of HDMI is input.
The setting is different from the setting in the menu.	The setting has been changed with the function button of the controller after setting in the menu.	The last setting becomes effective.
The function button of the controller does not function.	The setting has been changed in the menu after setting with the function button.	The last setting becomes effective.
The function of the function button of the controller is different from that of the panel display.	Another function has been assigned to the button.	See the Function Key menu (page 73) of the Controller menu to confirm the function assigned to the function button.

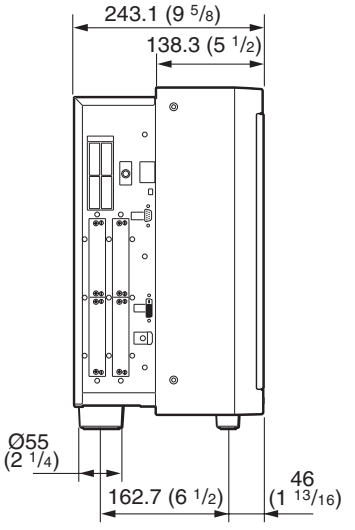
Dimensions

Unit: mm (inches)

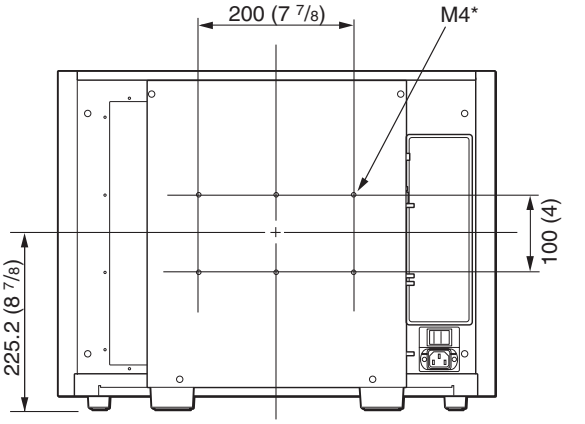
Front



Side



Rear

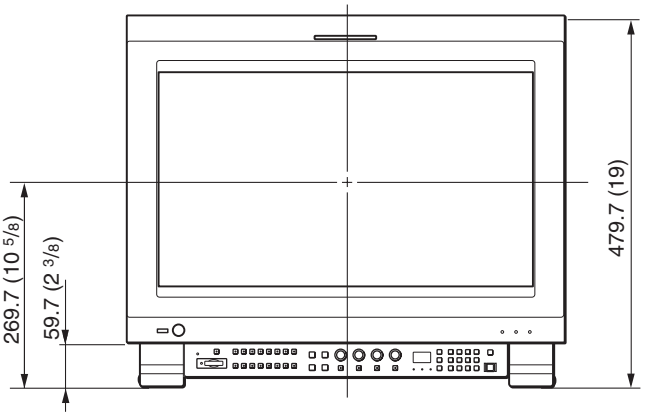


* When using this hole, use a screw which can be inserted into the monitor to a depth of 6 to 8 mm (1/4 to 11/32 inches).

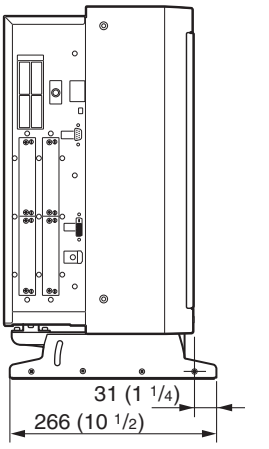
When the controller is attached with the BKM-37H

When the tilt unit is removed from the BKM-37H

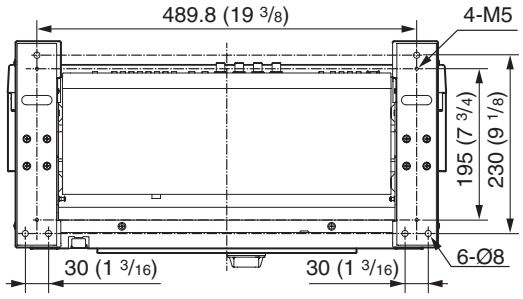
Front



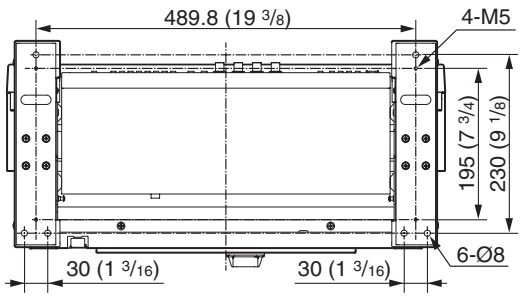
Side



Bottom

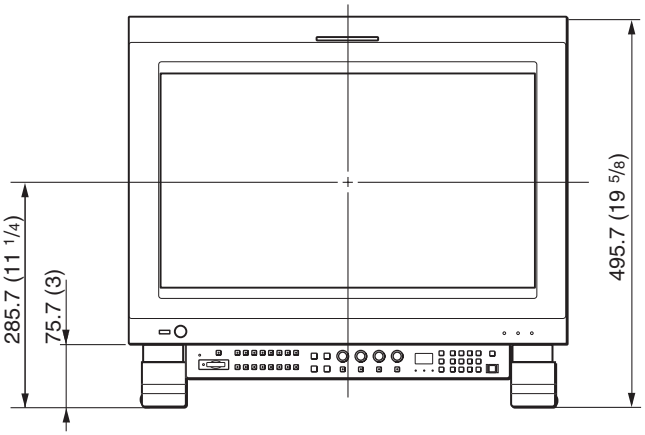


Bottom



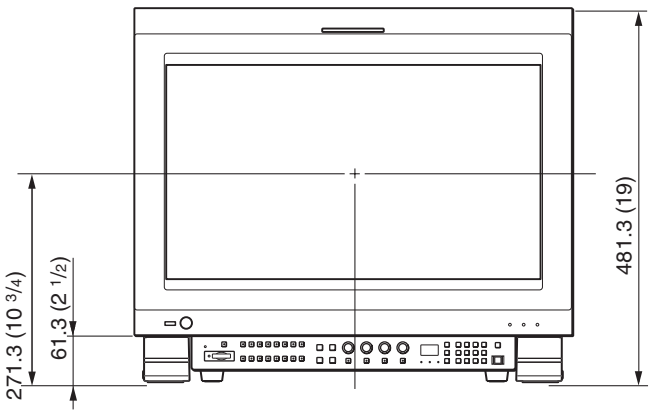
When the tilt unit is attached to the BKM-37H

Front

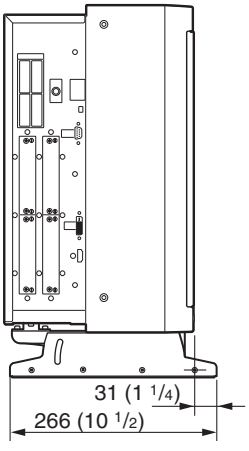


When the controller is attached with the BKM-38H

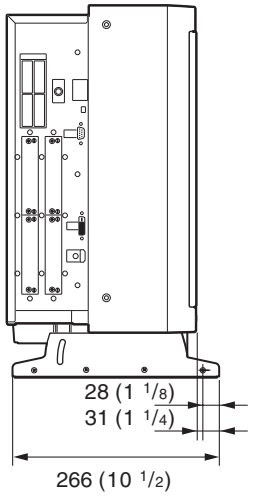
Front



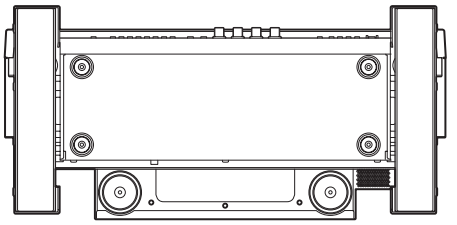
Side



Side



Bottom



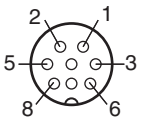
Connection Cable Specifications for Color Temperature Probes

Specified cables are required to connect color temperature probes to the monitor.

The following diagrams show pin assignments to connect the supplied connection cable for color temperature adjustment and optional D-sub 9-pin connector.

Connection cable for color temperature adjustment (supplied)

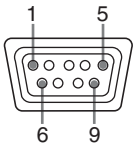
Mini DIN 8-pin connector (male)



Color of cable core	Pin number
Red	1
White	2
Black	3
Yellow	4
Blue	5
Green	6
Brown	7
Gray	8
Shield	Cover

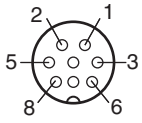
Connection cable for Konica Minolta CA-210 probe

D-sub 9-pin connector (male) (optional)



Signal	Pin number
CD	1
RXD	2
TXD	3
DTR	4
GND	5
DSR	6
RTS	7
CTS	8
GND	9

Mini DIN 8-pin connector (male)

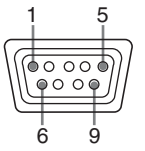


Pin number	Signal
1	N.C.
2	N.C.
3	RTS
4	GND
5	N.C.
6	TXD
7	+5V
8	RXD

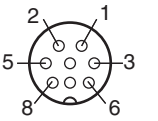
Connection cable for color temperature adjustment (supplied)

Connection cable for DK-Technologies PM 5639/06 probe

D-sub 9-pin connector (male)
(optional)



Mini DIN 8-pin connector (male)



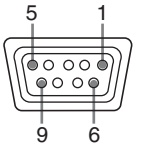
Signal	Pin number
NC	1
RXD	2
TXD	3
NC	4
GND	5
NC	6
NC	7
NC	8
+5V	9

Pin number	Signal
1	NC
2	NC
3	RTS
4	GND
5	NC
6	TXD
7	+5V
8	RXD

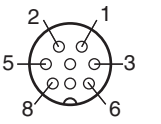
Connection cable for color temperature adjustment (supplied)

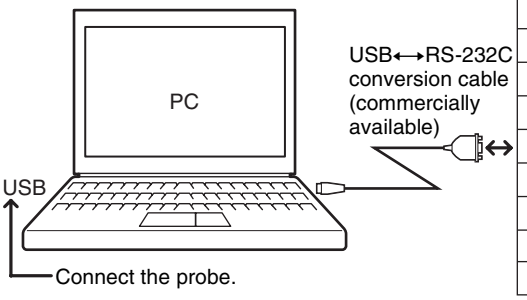
Connection cable for X-Rite Eye-One Pro probe

D-sub 9-pin connector (female)
(optional)



Mini DIN 8-pin connector (male)





USB↔RS-232C conversion cable (commercially available)

Signal	Pin number
CD	1
RXD	2
TXD	3
DTR	4
GND	5
DSR	6
RTS	7
CTS	8
GND	9

Pin number	Signal
1	N.C.
2	N.C.
3	RTS
4	GND
5	N.C.
6	TXD
7	+5V
8	RXD

Connection cable for color temperature adjustment (supplied)

Besides the connecting cable, an external PC is required. When the PC is not equipped with a serial port, a USB↔RS-232C conversion cable (commercially available) is required.
Connect the probe to the USB connector of the external PC.

Inserting/Ejecting the “Memory Stick”

The BKM-16R Monitor Control Unit has a slot that can take both standard size and Duo size. All products with a slot such as this are equipped with a system which automatically measures the size of an inserted medium. For this reason, both the standard-size “Memory Stick”/ “Memory Stick PRO” and smaller “Memory Stick Duo”/ “Memory Stick PRO Duo” can be used with this product without a Memory Stick Duo adaptor.
When an M2 adaptor is attached, you can use a “Memory Stick Micro” (“M2”)[1)].
Proceed as illustrated to insert and eject an optional “Memory Stick”.

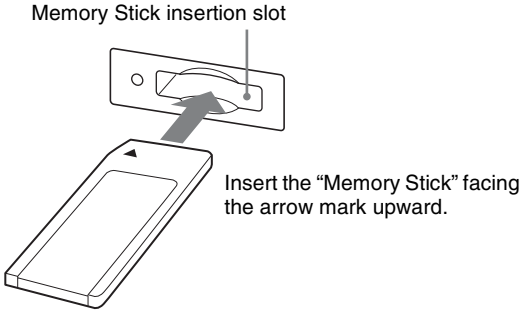
See each menu for information about operations on “Memory Stick” data.

1) “M2” is an abbreviation for “Memory Stick Micro”.

Note

Do not eject the “Memory Stick” while data is being saved or loaded.

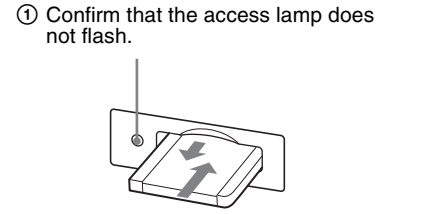
To insert the “Memory Stick”



Notes

- “Memory Stick Duo”/“Memory Stick PRO Duo” can be used without a Memory Stick Duo adaptor.
- When you use a “Memory Stick Micro”, do so after attaching the M2 adaptor (optional).
- When the “Memory Stick Micro” is inserted without the M2 adaptor, the “Memory Stick Micro” may not be removed from the unit.
- Be sure to insert the “Memory Stick” in the correct direction. Forcing the “Memory Stick” in the wrong way may damage it.
- Insert only the “Memory Stick” into the Memory Stick insertion slot. Attempting to insert other objects into the Memory Stick insertion slot may damage the product.

To eject the “Memory Stick”



Notes on “Memory Stick”

What is “Memory Stick”?

“Memory Stick” is a compact, portable and versatile IC (Integrated Circuit) recording medium with a data capacity that exceeds that of a floppy disk. “Memory Stick” is specially designed for exchanging and sharing digital data among “Memory Stick”-compatible products. Because it is removable, “Memory Stick” can also be used for external data storage.
“Memory Stick” is available in three sizes: standard size, compact “Memory Stick Duo” and “Memory Stick Micro” size.

Available types of “Memory Stick”

- “Memory Stick”, “Memory Stick PRO”, “Memory Stick Duo”, “Memory Stick PRO Duo” and “Memory Stick Micro” are used for the BKM-16R.
- The data displayed on this unit is not protected by the MagicGate copyright protection technology because the BKM-16R is not compliant with the “MagicGate” standard.
- Prepare “Memory Stick PRO (High-Speed)” or “Memory Stick PRO Duo (High-Speed)” for using the HD frame capture function (page 82).
- Although an operation check of this product has been performed with a “Memory Stick” of up to 8 GB, please note that operation is not guaranteed for every type of “Memory Stick”.

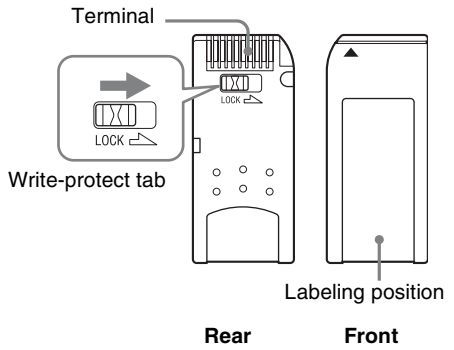
Note on data read/write speed

Data read/write speed may vary depending on the combination of the “Memory Stick” and “Memory Stick” compliant product you use.

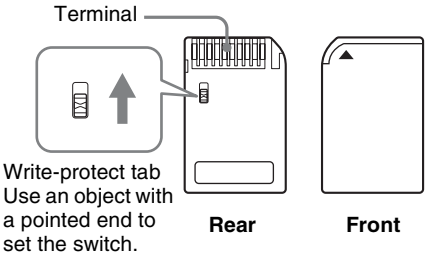
What is MagicGate?

MagicGate is copyright protection technology developed by Sony Corporation.

Before using a “Memory Stick”/“Memory Stick PRO”



Before using a “Memory Stick Duo”/ “Memory Stick PRO Duo”



Before using a “Memory Stick Micro”

Attach the M2 adaptor to the “Memory Stick Micro” to insert into the slot of the controller.

Notes

- You cannot record or erase data when the write-protect tab on the “Memory Stick” is set to LOCK.
- Image data may be damaged in the following cases:
  - If you remove the “Memory Stick,” or turn the power off when the access lamp is lit or flashing
  - If you use a “Memory Stick” near static electricity or a magnetic field
- When writing in the memory area, do not put strong pressure on the pen.
- We recommend backing up important data.
- Do not attach anything other than the supplied label to the “Memory Stick” labeling position.
- Attach the label so that it does not stick out beyond the labeling position.
- Carry and store the “Memory Stick” in its case.
- Do not touch the connector of the “Memory Stick” with anything, including your finger or metallic objects.
- Do not strike, bend, or drop the “Memory Stick.”
- Do not disassemble or modify the “Memory Stick.”
- Do not allow the “Memory Stick” to get wet.
- Do not use or store the “Memory Stick” in a location that is:
  - Extremely hot, such as in a car parked in the sun
  - Under direct sunlight
  - Very humid or subject to corrosive substances
- Do not insert multiple “Memory Stick” cards at the same time. This may cause damage to the product.
- When you use “Memory Stick Duo”/“Memory Stick PRO Duo” with this product, be sure to insert it in the right direction. Inserting it in the wrong direction may cause damages to the product.
- “Memory Stick Duo”/“Memory Stick PRO Duo”/ “Memory Stick Micro” and M2 duo size adaptor should be kept away from small children to prevent them from accidentally swallowing it.
- If the “Memory Stick Micro” attached to the M2 adaptor is attached to the Memory Stick Duo adaptor and inserted in the slot, the “Memory Stick Micro” may not function.
- Up to 1000 files can be memorized in one “Memory Stick”. When more than 1000 files are created, the warning “Too many files” is displayed. Delete an unused file in the Delete menu (page 69) of the File Management menu.
- Up to 20 characters can be used for the file name. When more than 20 characters are used for the file name, the file is not displayed.
- Use the machine and application corresponding to the “Memory Stick” for initialization of the “Memory Stick”. When Windows Explorer is used for initialization, a format error is caused and the “Memory Stick” is not usable for the monitor.
- When the data in the folder for the application software is copied or edited with the function of Windows, the data may not be reproduced.

“Memory Stick”, “Memory Stick PRO”, “Memory Stick Duo”, “Memory Stick PRO Duo”, “Memory Stick Micro”, “M2” and are trademarks or registered trademarks of Sony Corporation.

Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

It is against the copyright law to use any audio or picture you recorded without prior consent of the copyright holder. Accordingly, “Memory Stick” with content protected image or data can be only used within the law.

Menu Index

The menu index shows the principal menu items provided with this monitor in alphabetical sequence. For your reference, each menu item is followed by the page of this manual on which the item is explained and the main menu that the item belongs to.

	Menu Item	Page	Main menu
Number	1 Pin to 8 Pin	64	System Configuration menu
	1080I/PsF	52	Input Configuration menu
	16:9	59	Display Function menu
A	Adjustment	42	Adjustment menu
	Aperture	60	Display Function menu
	Aperture Value	54	Display Setting menu
	Apply Password	66	System Configuration menu
	Area Marker 1	56	Display Function menu
		61	Display Function menu
	Area Marker 2	57	Display Function menu
		61	Display Function menu
	Aspect Blanking	55	Display Function menu
	Aspect Marker	55	Display Function menu
		61	Display Function menu
	Auto	42	Adjustment menu
		45	Adjustment menu
	Auto Adjust	42	Adjustment menu
		45	Adjustment menu
B	B Off	60	Display Function menu
	Backlight	71	Status menu
	Betacam Setup Level	51	Input Configuration menu
	Black Detail Mode	61	Display Function menu
	Black Detail Setting	58	Display Function menu
	Black Frame Insertion	60	Display Function menu
	Blue Only	60	Display Function menu
C	Capture	58	Display Function menu
	Center Marker	57	Display Function menu
	CH Name	65	System Configuration menu
	CH No	65	System Configuration menu
	CH Status	70	Status menu
	Change Password	66	System Configuration menu
	Channel Name	51	Input Configuration menu
	Chroma Up	60	Display Function menu
	Clip Indicator	58	Display Function menu
	Closed Caption	65	System Configuration menu
	Color Bar	43	Adjustment menu
	Color Gamut	53	Display Setting menu
	Color Temp	50	Input Configuration menu

	Menu Item	Page	Main menu
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